# AN1x

## CONTROL SYNTHESIZER
## ANALOG PHYSICAL MODELING

# Data List

Daten-Liste
Liste de données

## CONTENTS



YAMAHA

# Factory-set Voice List

The following voices are preset at the factory. Each voice has different settings which you can change by moving the CONTROL knobs and other controllers. Each controller is assigned with its own unique settings. In general, AEG or FEG is assigned to knobs 1 and 2, VCF Cutoff to knob 5, Resonance to knob 6, and Effects-related parameters to knobs 7 and 8, respectively. Parameters assigned to other knobs were carefully selected for maximum effect. Depending on the settings for each parameter, changes you make may not be distinctive.

| No. | Cat. | Voice Name | Description |
|---|---|---|---|
| 1 | Co | Relaxx | Combination of arpeggio synth & synthpad. Use [ASSIGN] knobs to control the arpeggio voice. |
| 2 | Sq | Terraform | Hard sequence voice with pattern select. Keys C#1 to B2 correspond to User Patterns No. 1 to 23. |
| 3 | Ba | Celluloid | Dual voice layered with full-bodied bass and metallic sounds. SINGLE mode is suitable for original tunes. Also try MONO and LEGATO. Also good for Synth lead in the upper register. |
| 4 | Br | MajorBrass | Powerful analog brass sound. Use [RIBBON] controller to change VCF Cutoff (horizontal) and Resonance (pressure). |
| 5 | Pd | Soar | Ethereal pad sound using arpeggiator. |
| 6 | Ba | Hardcore | Hard core acid sound. Use [RIBBON] controller for distortion control. |
| 7 | Ba | Uni-Bass | Fat bass sound using DUAL UNISON with Legato. |
| 8 | Ld | MegaDrone | Fat lead sound with moving filter. |
| 9 | Ld | SyncLead | Lead sound using "Sync." Try the [RIBBON] controller for effect. |
| 10 | St | Legato | Pad strings sound with slow attack. |
| 11 | Sq | Alan | Standard British progressive rock sound. |
| 12 | Ba | Mini | Classic analog synth bass with various sequence patterns. Keys C#1 to B2 are correspond to User Patterns No. 25 to 47. |
| 13 | Se | Chemical | Diving sweep sound. The rhythm in Scene 1 is created with the FreeEG. This is disabled for Scene 2. |
| 14 | Pd | SyncSweep | Use [RIBBON] or [MODULATION] wheel for sync pitch control. |
| 15 | Sc | Caner | Fat hook-line voice for dance & techno music. Try scene 2 with [MODULATION] wheel. |
| 16 | Pf | MorphEP | Continuously changes between electric piano sound and pad sound using "Sync" by Scene Control function. |
| 17 | Sq | Doves | Spacey sequence voice. Use [RIBBON] controller and [ASSIGN] knobs for effect. |
| 18 | Sq | BPF Morph | Sequence voice with band pass filter for special atmosphere. |
| 19 | Sq | Seismic | Step Sequencer plays a combination of analog drum and analog bass sounds. Free EG adds modulation for unique atmosphere. |

| No. | Cat. | Voice Name | Description |
|---|---|---|---|
| 20 | Fx | Earth | Sound effect layered with arpeggiated melody line and human voice-type pad. |
| 21 | Co | Vinnie | Nice Split of vintage arpeggio & synth lead. |
| 22 | Co | Detroit | Combination analog bass and analog effect sound. |
| 23 | Co | Plastik | Combination synth sound layered with analog drum sound and its perfect fourth. Step Sequencer playes only while you hold the keys since the Hold function is set to OFF. |
| 24 | Co | ChinaTech | Combination synth sound layered with analog drum sound and its perfect fourth. Step Sequencer playes only while you hold the keys since the Hold function is set to OFF. |
| 25 | Co | Silence | Combination analog pad and analog lead sound. |
| 26 | Ba | Dog Bass | Fat hip hop saw bass. Slide the edge back with the [MODULATION] wheel. |
| 27 | Ba | Slum | Heavy analog bass with a characteristic attack. Select Scene 2 for a variation. |
| 28 | Ba | Loud | Hybrid analog and FM bass sound. |
| 29 | Ba | MiniLow | Analog bass sound with short filter decay. Use [ASSIGN] knobs to change the envelope and filter settings. |
| 30 | Ba | Kickbass | Bass sound with a characteristic attack. Select Scene 2 to produce a sharp bass drum attack. |
| 31 | Ba | Sub Sub | Hollow sub bass sound. |
| 32 | Ba | Hardstep | Slippery drum and bass sound. Use the [RIBBON] to control the slip. |
| 33 | Ba | Wonder | Analog bass sound suitable for melodic riffs. |
| 34 | Ba | Duck Bass | Analog bass sound with wide dynamic range created by velocity. |
| 35 | Ba | Prophetic | Vintage analog style bass sound. |
| 36 | Ba | Harmosync | Contemporary acid sound. In Scene 2 the compressor drive is on the [RIBBON]. Try Scene1 for a more harmonic effect. |
| 37 | Ba | Kangaroo | Bouncey soft acid sound. Get happy with this one. |
| 38 | Ba | Acid 1 | Hard acid sound number 1. Note that the feedback parameter (knob 7) interacts with the resonance (knob 6). |

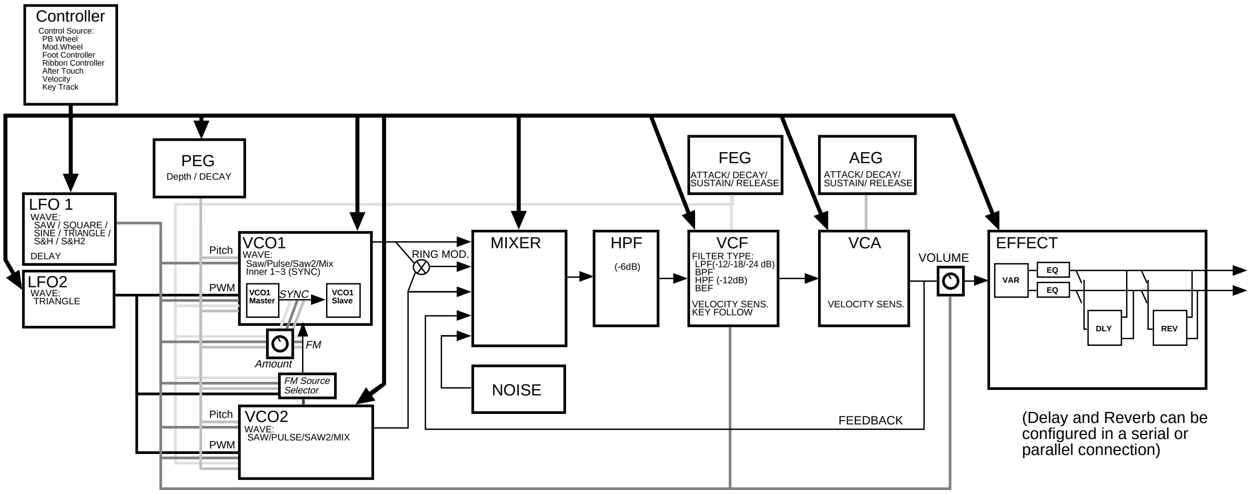
| No. | Cat. | Voice Name | Description |
|---|---|---|---|
| 39 | Ba | Acid 2 | Acid sound number 2. Twiddle those knobs for ultimate experience. |
| 40 | Ba | Acid 3 | Harder acid sound. [RIBBON] controls distortion amount. Watch the resonance. |
| 41 | Br | Soft Brass | Soft analog brass sound. Try the [RIBBON] controller. |
| 42 | Br | Hard Brass | Bright & fat analog sawtooth synth sound. Scene 2 is a square wave variation. |
| 43 | Br | Bronze | Unison brass sound with short decay changes. Open filter brass with the [MODULATION] weel. The same voice with the oscillators in octaves is in Scene 2. |
| 44 | Br | Fatty | Fat 70s style synth brass. |
| 45 | Br | Quincy | Gentle and cool synth brass sound. Use velocity to control brightness. |
| 46 | Br | CS80 Brass | Emulation of classic CS80 brass patch. |
| 47 | Br | Tangiers | Brass sound with fast attack. Great for house stabs. |
| 48 | Br | Brassmorph | [MODULATION] wheel gradually changes the sound between filtrated brass sound (Scene 1) and projected brass sound (Scene 2). |
| 49 | St | Analog | Bright analog synth strings. Use [MODULATION] wheel or [RIBBON] for dark strings. |
| 50 | St | Lush | Rich PWmod string pad. Use the [RIBBON] to control brightness. A slight variation, up an octave in pitch, is in Scene 2. |
| 51 | St | Chocolate | Orchestral sound layered with strings in different octaves. |
| 52 | St | Stringz | Analog PWmod synth string pad. Scene 2 is a square wave variation, with pulse width controlled by the [RIBBON]. |
| 53 | St | String Pad | Soft pad great for backing. |
| 54 | Sc | Billy | 70s style poly synth sound. Use [ASSIGN] knobs for neat sound variations. |
| 55 | Sc | Fetish | Wasp-like sound for soundtracks with the sweet pleasure of pain. |
| 56 | Sc | P-5 Compy | Emulation of the classic Prophet 5 sound. |
| 57 | Sc | Stakka | Voice stacked with a major third. |
| 58 | Sc | Dust | Pizzicato synth sound. |
| 59 | Sc | WarmPoly | 70s style poly synth. Use [ASSIGN] knobs for sound variations. |
| 60 | Sc | Rhubarb | Fat portamento hook-voice for dance & techno. |
| 61 | Ld | Susy | Warm vintage "mini" synth lead voice. |
| 62 | Ld | OB-8 | Thick detuned wave. |
| 63 | Ld | Lucky | Portamento lead sound created with a typical square wave. Turn knob 3 to change the pulse width. |
| 64 | Ld | Earth Lead | Sensitive synth lead voice. Use [RIBBON], [PITCH] wheel and [MODULATION] wheel. |
| 65 | Ld | HardSync | Fat synth lead sound with sync-envelope. |
| 66 | Ld | Chick | Dark analog synth lead. Turning knob 5 makes the sound brighter. |
| 67 | Ld | Stevie | Typical 80s Stevie Winwood type lead sound. |
| 68 | Ld | Floyd75 | Stacked over 4 octaves! Pink Floyd's "Wish You Were Here" revisited. |
| 69 | Ld | Synchromes | Dangerous lead sound also great for percussive sequence lines. |
| 70 | Pd | High Sweep | Soft sweep with tons of resonance. |
| 71 | Pd | Ice Pad | Synth pad using Free EG for subtle trembles. A typical example of how easy it is to create a voice by using Edge and Ring Modulator. |
| 72 | Pd | Sprinkler | Layered sound with fast arpeggiated sound and soft pad. The soft pad can be changed drastically with [MODUALTION] wheel and [RIBBON] controller. |
| 73 | Pd | GreatMorph | Powerful pad sound suitable for progressive rock. Check the drastic changes between Scene 1 and 2 using the [MODULATION] wheel. |
| 74 | Pd | Church Bel | Pad with arpeggiated bells on top. Use the [RIBBON] to control the volume of the bells. |
| 75 | Pd | Deep Blue | Synth pad sound with great sound projection. |
| 76 | Pd | Da Padd | Dark and thick analog synth pad sound. Scene 2 is an LFO sweep with BEF variation. The [RIBBON] controls LFO sweep speed in Scene 2 over a wider range than knob 3 for a "watery" effect. |
| 77 | Pd | Water Pad | Pad with upward BPF sweep. Use the [MODULATION] wheel to change between the original version of the pad and a variation. Use the [RIBBON] to control the brightness. |
| 78 | Pd | Night Sky | Modulated pluck sound with high string pad fading in over it. Use the [MODULATION] wheel to change the pitch of the pluck sound. Middle positions include great voice variations. Use the [RIBBON] to control volume of the strings. |
| 79 | Pd | Oberweich | Clear portamento pad sound. |
| 80 | Pd | PolyTen | Analog strings pad sound with chorus effect. |
| 81 | Pd | PortPad | Powerful synth pad sound. |
| 82 | Pd | Sacred | Vocal type pad sound. |
| 83 | Pd | Sweep&S/H | Sweep pad which can morph to Sample & Hold using the [MODULATION] wheel. |
| 84 | Pd | Slip | Thin pad which sits behind fat drums. |

| No. | Cat. | Voice Name | Description |
|---|---|---|---|
| 85 | Pd | Polyswell | Warm and wide poly synth sound with long filter attack. |
| 86 | Co | Padbells | Combination of bells with pad. Use [RIBBON] to fade the bells in or out. |
| 87 | Pf | DX E.Piano | Bright FM electric piano sound. |
| 88 | Pf | Condenser | Condenser piano sound. |
| 89 | Pf | WhitneyEP | Electric piano with clean Whitney Houston sound. |
| 90 | Or | DrawOrgans | Clean organ with 4 drawbars. Use [MODULATION] wheel for rotary speed and [ASSIGN] knobs for tone control. |
| 91 | Or | 16+2.2/3 | Many organ sounds available with controllers. |
| 92 | Or | Garage | Garage and ragga type small synth organ. Scene 2 has a more percussive version. |
| 93 | Or | House | House organ ideal for bouncey basslines. |
| 94 | Or | Pipes | Chiffer pipe organ sound that transforms into full organ when the [MODULATION] wheel is increased. The [RIBBON] controls the volume of the upper octave. |
| 95 | Pc | Hi Q Reso | The immortal Kraftwerk invention. |
| 96 | Pc | Koan | Ring modulation style wind chimes. |
| 97 | Pc | Woob | Ambient percussion effect by ring modulation. |
| 98 | Fx | WelcomBk | Great space pad sound. Use the [MODULATION] wheel to add pitch modulation effects. Hold note A4 to recreate the beginning of ELP's "Welcome Back My Friends" (Karn Evil 9). |
| 99 | Fx | Magic | Spacey pad with soft sync modulation. |
| 100 | Fx | Hypno | Notes in the bottom octave of the keyboard play a sequence and determine its pitch. Play single or double note melodies in the upper keyboard. The Free EG does the rest. |
| 101 | Fx | Soundtrack | Synth voice great for film music. |
| 102 | Fx | Morphyum | FX voice with pitch attack & sync. |
| 103 | Fx | WindString | FX pad sound expressing fast bowed sound of a violin using the Arpeggiator. |
| 104 | Fx | Vangelizm | Combination synth and analog pad sound using Arpeggiator. |
| 105 | Fx | Chandelier | Bright analog sound effect using Arpeggiator. |
| 106 | Fx | FreeEGRthm | Free EG and Arpeggiator extravaganza which procudes unusual rhythms. |

| No. | Cat. | Voice Name | Description |
|---|---|---|---|
| 107 | Fx | Heaven | Sound effect which creates rhythms by matching the delay length to the Arpeggiator tempo. |
| 108 | Fx | Mars | Typical vintage synth with high pass sweep. |
| 109 | Fx | Porpoise | Sound which creates animal squeakings using the Free EG. |
| 110 | Fx | Jack | Filter LFO sound effect great for trance music. |
| 111 | Fx | Microdot | Pointy strobe-ish techno sound. |
| 112 | Fx | Polaris | Thick pad sound with creamy effect. Adjust knobs 2 and 7 if it's too slow for ya. |
| 113 | Fx | RhythmCity | A sequenced voice is triggered from B2 and below. Try using single notes or octaves in the lower range of the keyboard. Play chords from C3 and above. Change chords in time. The [RIBBON] controls the brightness of the sequence. |
| 114 | Fx | CyberBag | Sound effect created with the FreeEG. |
| 115 | Se | CyberClock | Sound effect combined with Arpeggiator and PEG. |
| 116 | Se | Flutter | Soundd with special sweeping effect. |
| 117 | Se | Industrial | Use all controllers and go crazy! |
| 118 | Se | Moment | Sound effect producing completely different sounds in all pitches by applying FM modulation. |
| 119 | Se | We All Die | Whimsical special effect sound using sync to create vocal formants. |
| 120 | Sq | Cactus | Analog sequence with complex Free EG modulations. Hold the key for a long time. |
| 121 | Sq | Overdrive | Distorted analog sequence great for techno music. Use the [RIBBON] to control the filter. |
| 122 | Sq | Omega | Analog sequence with complex Free EG modulations. Hold the key for a long time. |
| 123 | Sq | Csus4 | Automatically plays with C sus 4. Get into it! |
| 124 | Sq | TekkLine | Free EG adds radically changing long cycle to the sequences of typical phrases. |
| 125 | Sq | Highway | Spacey sequence with strong phasing effect. |
| 126 | Sq | Saturn | Typical percussive type analog synth great for arpeggios. |
| 127 | Sq | Poptart | Percussive chill-out effect. Be cool. |
| 128 | Sq | VirtlScene | Play a tune along with the typical sequence line while changing voices using the [MODULATION] wheel. |

**NOTE** When Step Sequencer Keyboard Mode is set to "sel&norm" or "sel&shift", User Patterns can be played to the left of the Split point. User Patterns can also be selected by playing a note. In this case, when you press the C1 key, the current Voice Pattern will be accessed. (See page 41.)

# Tone Generator And Effect Signal Flow




(Delay and Reverb can be configured in a serial or parallel connection)

# Arpeggiator Type List

| No. | Param Name | Comments |
|---|---|---|
| 1 | UpOct1 | The chord (or phrase) ascends up 1 Octave. |
| 2 | UpOct2 | The chord (or phrase) ascends up 2 Octaves. |
| 3 | UpOct4 | The chord (or phrase) ascends up 4 Octaves. |
| 4 | DwOct1 | The chord (or phrase) descends down 1 Octave. |
| 5 | DwOct2 | The chord (or phrase) descends down 2 Octaves. |
| 6 | DwOct4 | The chord (or phrase) descends down 4 Octaves. |
| 7 | UpDwAOct1 | The chord (or phrase) ascends up 1 Octave, then descends. |
| 8 | UpDwAOct2 | The chord (or phrase) ascends up 2 Octaves, then descends. |
| 9 | UpDwAOct4 | The chord (or phrase) ascends up 4 Octaves, then descends. |
| 10 | UpDwBOct1 | The chord (or phrase) ascends up 1 Octave, then descends. (This is slightly different from type UpDwAOct1.) |
| 11 | UpDwBOct2 | The chord (or phrase) ascends up 2 Octaves, then descends. (This is slightly different from type UpDwAOct2.) |
| 12 | UpDwBOct4 | The chord (or phrase) ascends up 4 Octaves, then descends. (This is slightly different from type UpDwAOct4.) |
| 13 | RandmOct1 | Plays up and down randomly over 1 Octave, based on the chord you play. |
| 14 | RandmOct2 | Plays up and down randomly over 2 Octaves, based on the chord you play. |
| 15 | RandmOct4 | Plays up and down randomly over 4 Octaves, based on the chord you play. |
| 16 | Techno-A | Typical techno sequence TYPE A. (Euro techno type.) |
| 17 | Techno-B | Typical techno sequence TYPE B. (UK type with Velocity.) |
| 18 | Techno-C | Typical techno sequence TYPE C. (Japan techno type.) |
| 19 | Techno-D | Typical techno sequence TYPE D. (German techno type.) |
| 20 | DAHouse | Backing sequence with House music feel. (Bass for left hand, Chord play for right hand.) |
| 21 | SyncopaA | Syncopation type sequence TYPE A. |
| 22 | SyncopaB | Syncopation type sequence TYPE B. (Octave moves considerably.) |
| 23 | SyncoEcho | Syncopated type echo. |
| 24 | TekkEchoA | Echo with moving filter A. |
| 25 | TekkEchoB | Echo with moving filter B. |
| 26 | PulseLine | Sequence mixed with bass line and sequence line. |
| 27 | BassLineA | Arpeggio phrase TYPE A for bass. |
| 28 | BassLineB | Arpeggio phrase TYPE B for bass. (With Velocity.) |
| 29 | BassLineC | Arpeggio phrase TYPE C for bass. |
| 30 | BassLineD | Arpeggio phrase TYPE D for bass. |

# Effect Type List

| VARIATION EFFECT | | Wet:Dry | 3-BAND EQUALIZER | |
|---|---|---|---|---|
| 1 | Chorus 1 | D63>W ~ D=W ~ D<W63 | 3-Band EQ | |
| 2 | Chorus 2 | D63>W ~ D=W ~ D<W63 | **DELAY EFFECT** | |
| 3 | Flanger | D63>W ~ D=W ~ D<W63 | 1 | Delay L,C,R |
| 4 | Symphonic | D63>W ~ D=W ~ D<W63 | 2 | Delay L,R |
| 5 | Phaser | D63>W ~ D=W ~ D<W63 | 3 | Echo |
| 6 | Auto PAN | D63>W ~ D=W ~ D<W63 | 4 | Cross Delay |
| 7 | Rotary Sp. | D63>W ~ D=W ~ D<W63 | 5 | Tempo Delay |
| 8 | Pitch Change | D63>W ~ D=W ~ D<W63 | **REVERB EFFECT** | |
| 9 | Aural Exc | Dry (1-63), Wet (64-127) | 1 | Hall1 |
| 10 | Comp | Dry (1-63), Wet (64-127) | 2 | Hall2 |
| 11 | Wah | D63>W ~ D=W ~ D<W63 | 3 | Hall3 |
| 12 | Distortion | Dry (1-63), Both (64), Wet (65-127) | 4 | Room1 |
| 13 | Over Drive | Dry (1-63), Both (64), Wet (65-127) | 5 | Room2 |
| 14 | Amp Sim. | Dry (1-63), Both (64), Wet (65-127) | 6 | Stage1 |
| | | | 7 | Stage2 |
| | | | 8 | Plate |

# Effect Parameter List

## Variation Effect

### CHORUS1, 2

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Mod Freq | 0.00~41.70Hz | Common | 0-159 | table#1 |
| 2 | PM Depth | 0~100 | | 0-100 | |
| 3 | AM Type | off~RndHrd | | 0-15 | table#4 |
| 4 | Dly Offset | 0~50.0ms | | 0-500 | |
| elm | Dry:Wet | D63>W ~ D=W ~ D<W63 | Scene | 1-127 | |

### FLANGER1

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Mod Freq | 0.00~41.70Hz | Common | 0-159 | table#1 |
| 2 | Mod Depth | 0~100 | | 0-100 | |
| 3 | Dly Offset | 0~15.5ms | | 0-155 | |
| 4 | FB Level | -99~+99 | | 0-198 | |
| elm | Dry:Wet | D63>W ~ D=W ~ D<W63 | Scene | 1-127 | |

### SYMPHONIC

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Mod Freq | 0.00~41.70Hz | Common | 0-159 | table#1 |
| 2 | Mod Depth | 0~100 | | 0-100 | |
| 3 | Dly Offset | 0~45.0ms | | 0-450 | |
| elm | Dry:Wet | D63>W ~ D=W ~ D<W63 | Scene | 1-127 | |

### PHASER

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Mod Freq | 0.00~41.70Hz | Common | 0-159 | table#1 |
| 2 | Mod Depth | 0~100 | | 0-100 | |
| 3 | Phase Shift Offset | 0~100 | | 0-100 | |
| 4 | FB Level | -99~+99 | | 0-198 | |
| 5 | Stage | 4, 6, 8 | | 0-2 | |
| 6 | Diffusion | stereo, mono | | 0-1 | |
| elm | Dry:Wet | D63>W ~ D=W ~ D<W63 | Scene | 1-127 | |

### AUTO PAN

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Speed | 0.00~41.70Hz | Common | 0-159 | table#1 |
| 2 | L/R Depth | 0~100 | | 0-100 | |
| 3 | F/R Depth | 0~100 | | 0-100 | |
| 4 | PAN Direction | L->R,L<-R,L<->R,Lturn,Rturn | | 0-4 | |
| elm | Dry:Wet | D63>W ~ D=W ~ D<W63 | Scene | 1-127 | |

### ROTARY SPEAKER

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Speed | 0.00~41.70Hz | Common | 0-159 | table#1 |
| 2 | Depth | 0~100 | | 0-100 | |
| 3 | HPF | Thru~8.0kHz | | 0-52 | table#2 |
| 4 | LPF | 1.0k~Thru | | 34-60 | table#2 |
| elm | Dry:Wet | D63>W ~ D=W ~ D<W63 | Scene | 1-127 | |

### PITCH CHANGE

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Pitch | -24~+24 | Common | 0-48 | |
| 2 | Fine 1 | -50~+50 | | 0-100 | |
| 3 | Pan 1 | L63~R63 | | 1-127 | |
| 4 | Fine 2 | -50~+50 | | 0-100 | |
| 5 | Pan 2 | L63~R63 | | 1-127 | |
| elm | Dry:Wet | D63>W ~ D=W ~ D<W63 | Scene | 1-127 | |

### AURAL EXCITER

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | HPF | 500Hz~16.0kHz | | 28-58 | |
| 2 | Drive | 0~100 | Comn | 0-100 | |
| 3 | Mix Level | 0~100 | | 0-100 | |
| elm | Dry:Wet | dry(1), wet(127) | --- | | |

*Limit ~63:dry(1), 64~:wet(127)

### COMPRESSOR

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Attack | 1~40ms | | 0-19 | table#5 |
| 2 | Release | 10~680ms | | 0-15 | table#6 |
| 3 | Threshold | -48~-6dB | Comn | 0-42 | |
| 4 | Ratio | 1.0~20.0 | | 0-7 | table#7 |
| 5 | Out Level | 0~100 | | 0-100 | |
| elm | Dry:Wet | dry(1), wet(127) | --- | | |

*Limit ~63:dry(1), 64~:wet(127)

### WAH

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Sensitivity | 0~100 | | 0-100 | |
| 2 | Cutoff Freq Offset | 20Hz~14.0kHz | Comn | 0-39 | table#8 |
| 3 | Resonance | 1.0~10.0 | | 0-90 | |
| elm | Dry:Wet | D63>W ~ D=W ~ D<W63 | Scene | 1-127 | |

### DISTORTION, OVERDRIVE

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Drive | 0~100 | Comn | 0-100 | |
| 2 | Mid Freq | 100Hz~10.0kHz | | 14-54 | table#2 |
| 3 | Mid Gain | -12~+12dB | | 52-76 | |
| 4 | High Freq | 500Hz~16.0kHz | | 28-58 | table#2 |
| 5 | High Gain | -12~+12dB | | 52-76 | |
| 6 | Out Level | 0~100 | | 0-100 | |
| elm | Dry:Wet | dry(1), both(64), wet(127) | --- | 1-127 | |

*Limit ~63:dry(1), 65~:wet(127)

### GUITAR AMP SIMULATOR

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Drive | 0~100 | Comn | 0-100 | |
| 2 | AMP Type | Off,Stack,Combo,Tube | | 0-3 | |
| 3 | LPF | 1.0k~Thru | | 34-60 | table#2 |
| 4 | Out Level | 0~100 | | 0-100 | |
| elm | Dry:Wet | dry(1), both(64), wet(127) | --- | 1-127 | |

*Limit ~63:dry(1), 65~:wet(127)

## 3-BAND EQ

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Low Freq | 32Hz~2.0kHz | | 4-40 | table#2 |
| 2 | Low Gain | -12~+12dB | | 52-76 | |
| 3 | Mid Freq | 100Hz~10.0kHz | | 14-54 | table#2 |
| 4 | Mid Gain | -12~+12dB | | 52-76 | |
| 5 | Mid Reso | 1.0~12.0 | | 10-120 | |
| 6 | High Freq | 500Hz~16.0kHz | | 28-58 | table#2 |
| 7 | High Gain | -12~+12dB | | 52-76 | |

## DELAY EFFECT

### DELAY L,C,R

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Lch Dly | 0.1~660.0ms | | 0-6599 | |
| 2 | Rch Dly | 0.1~660.0ms | | 0-6599 | |
| 3 | Cch Dly | 0.1~660.0ms | | 0-6599 | |
| 4 | Cch Level | 0~100 | | 0-100 | |
| 5 | FB Level | -99~+99 | | 0-198 | |
| 6 | HPF | Thru~8.0kHz | | 0-52 | table#2 |
| 7 | LPF | 1.0k~Thru | | 34-60 | table#2 |
| | Return | 0~127 | Comn | | |

### DELAY L,R

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Lch Dly | 0.1~660.0ms | | 0-6599 | |
| 2 | Rch Dly | 0.1~660.0ms | | 0-6599 | |
| 3 | FB Dly 1 | 0.1~660.0ms | | 0-6599 | |
| 4 | FB Dly 2 | 0.1~660.0ms | | 0-6599 | |
| 5 | FB Level | -99~+99 | | 0-198 | |
| 6 | HPF | Thru~8.0kHz | | 0-52 | table#2 |
| 7 | LPF | 1.0k~Thru | | 34-60 | table#2 |
| | Return | 0~127 | Comn | | |

### ECHO

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Lch Dly | 0.1~330.0ms | | 0-3299 | |
| 2 | Lch FB Level | -99~+99 | | 0-198 | |
| 3 | Rch Dly | 0.1~330.0ms | | 0-3299 | |
| 4 | Rch FB Level | -99~+99 | | 0-198 | |
| 5 | HPF | Thru~8.0kHz | | 0-52 | table#2 |
| 6 | LPF | 1.0k~Thru | | 34-60 | table#2 |
| | Return | 0~127 | Comn | | |

### CROSS DELAY

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | L->R Dly | 0.1~330.0ms | | 0-3299 | |
| 2 | L->R FB Level | -99~+99 | | 0-198 | |
| 3 | R->L Dly | 0.1~330.0ms | | 0-3299 | |
| 4 | R->L FB Level | -99~+99 | | 0-198 | |
| 5 | Input Select | L,R,L&R | | 0-2 | |
| 6 | HPF | Thru~8.0kHz | | 0-52 | table#2 |
| 7 | LPF | 1.0k~Thru | | 34-60 | table#2 |
| | Return | 0~127 | Comn | | |

### TEMPO DELAY

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Reference Dly | ♪specified: 1/2, 3/8, 1/4, 3/16,<br>1/6, 1/8, 3/32, 1/12, 1/16, 1/24, 1/32 | | | |
| 2 | Lch Diffusion | -20 - 20% | | 44-84 | |
| 3 | Rch Diffusion | -20 - 20% | | 44-84 | |
| 4 | FB Level | -99~+99 | | 0-198 | |
| 5 | HPF | Thru~8.0kHz | | 0-52 | table#2 |
| 6 | LPF | 1.0k~Thru | | 34-60 | table#2 |
| | Return | 0~127 | Comn | | |

## REVERB EFFECT

### HALL1, HALL2, HALL3, ROOM1, ROOM2, STAGE1, STAGE2, PLATE

| No. | Parameter | Display | Ctrl Matrix | Value | Table |
|---|---|---|---|---|---|
| 1 | Reverb Time | 0.3~30.0s | | 0-69 | table#3 |
| 2 | High Damp | 0.1~1.5 | | 0-14 | |
| 3 | Diffusion | 0~10 | | 0-10 | |
| 4 | Initial Dly | 0.1~100.0ms ✱ | | 0-999 | |
| 5 | Er:Rev | E63>R ~ E=R ~ E<R63 | | 1-127 | |
| 6 | HPF | Thru~8.0kHz | | 0-52 | table#2 |
| 7 | LPF | 1.0k~Thru | | 34-60 | table#2 |
| | Return | 0~127 | Comn | | |

✱ This Dly can be set 0.1 ~ 80ms when HALL1, 2 or 3 is selected.

# Effect Parameter Tables

### Table#1
### LFO Frequency

| Data | Value | Data | Value | Data | Value |
|---|---|---|---|---|---|
| 0 | 0 | 64 | 5.39 | 128 | 20.85 |
| 1 | 0.08 | 65 | 5.47 | 129 | 21.52 |
| 2 | 0.17 | 66 | 5.56 | 130 | 22.2 |
| 3 | 0.25 | 67 | 5.64 | 131 | 22.87 |
| 4 | 0.34 | 68 | 5.72 | 132 | 23.54 |
| 5 | 0.42 | 69 | 5.81 | 133 | 24.21 |
| 6 | 0.51 | 70 | 5.89 | 134 | 24.89 |
| 7 | 0.59 | 71 | 5.98 | 135 | 25.56 |
| 8 | 0.67 | 72 | 6.06 | 136 | 26.23 |
| 9 | 0.76 | 73 | 6.15 | 137 | 26.9 |
| 10 | 0.84 | 74 | 6.23 | 138 | 27.58 |
| 11 | 0.93 | 75 | 6.31 | 139 | 28.25 |
| 12 | 1.01 | 76 | 6.4 | 140 | 28.92 |
| 13 | 1.09 | 77 | 6.48 | 141 | 29.59 |
| 14 | 1.18 | 78 | 6.57 | 142 | 30.27 |
| 15 | 1.26 | 79 | 6.65 | 143 | 30.94 |
| 16 | 1.35 | 80 | 6.74 | 144 | 31.61 |
| 17 | 1.43 | 81 | 6.82 | 145 | 32.28 |
| 18 | 1.52 | 82 | 6.9 | 146 | 32.96 |
| 19 | 1.6 | 83 | 6.99 | 147 | 33.63 |
| 20 | 1.68 | 84 | 7.07 | 148 | 34.3 |
| 21 | 1.77 | 85 | 7.16 | 149 | 34.97 |
| 22 | 1.85 | 86 | 7.24 | 150 | 35.65 |
| 23 | 1.94 | 87 | 7.32 | 151 | 36.32 |
| 24 | 2.02 | 88 | 7.41 | 152 | 36.99 |
| 25 | 2.1 | 89 | 7.49 | 153 | 37.67 |
| 26 | 2.19 | 90 | 7.58 | 154 | 38.34 |
| 27 | 2.27 | 91 | 7.66 | 155 | 39.01 |
| 28 | 2.36 | 92 | 7.75 | 156 | 39.68 |
| 29 | 2.44 | 93 | 7.83 | 157 | 40.36 |
| 30 | 2.53 | 94 | 7.91 | 158 | 41.03 |
| 31 | 2.61 | 95 | 8 | 159 | 41.7 |
| 32 | 2.69 | 96 | 8.08 | | |
| 33 | 2.78 | 97 | 8.17 | | |
| 34 | 2.86 | 98 | 8.25 | | |
| 35 | 2.95 | 99 | 8.33 | | |
| 36 | 3.03 | 100 | 8.42 | | |
| 37 | 3.12 | 101 | 8.5 | | |
| 38 | 3.2 | 102 | 8.59 | | |
| 39 | 3.28 | 103 | 8.67 | | |
| 40 | 3.37 | 104 | 8.76 | | |
| 41 | 3.45 | 105 | 8.84 | | |
| 42 | 3.54 | 106 | 8.92 | | |
| 43 | 3.62 | 107 | 9.01 | | |
| 44 | 3.7 | 108 | 9.09 | | |
| 45 | 3.79 | 109 | 9.18 | | |
| 46 | 3.87 | 110 | 9.26 | | |
| 47 | 3.96 | 111 | 9.68 | | |
| 48 | 4.04 | 112 | 10.11 | | |
| 49 | 4.13 | 113 | 10.61 | | |
| 50 | 4.21 | 114 | 11.44 | | |
| 51 | 4.29 | 115 | 12.11 | | |
| 52 | 4.38 | 116 | 12.78 | | |
| 53 | 4.46 | 117 | 13.45 | | |
| 54 | 4.55 | 118 | 14.13 | | |
| 55 | 4.63 | 119 | 14.8 | | |
| 56 | 4.71 | 120 | 15.47 | | |
| 57 | 4.8 | 121 | 16.14 | | |
| 58 | 4.88 | 122 | 16.82 | | |
| 59 | 4.97 | 123 | 17.49 | | |
| 60 | 5.05 | 124 | 18.16 | | |
| 61 | 5.14 | 125 | 18.83 | | |
| 62 | 5.22 | 126 | 19.51 | | |
| 63 | 5.3 | 127 | 20.18 | | |

### Table#2
### EQ Frequency

| Data | Value |
|---|---|
| 0 | THRU(20) |
| 1 | 22 |
| 2 | 25 |
| 3 | 28 |
| 4 | 32 |
| 5 | 36 |
| 6 | 40 |
| 7 | 45 |
| 8 | 50 |
| 9 | 56 |
| 10 | 63 |
| 11 | 70 |
| 12 | 80 |
| 13 | 90 |
| 14 | 100 |
| 15 | 110 |
| 16 | 125 |
| 17 | 140 |
| 18 | 160 |
| 19 | 180 |
| 20 | 200 |
| 21 | 225 |
| 22 | 250 |
| 23 | 280 |
| 24 | 315 |
| 25 | 355 |
| 26 | 400 |
| 27 | 450 |
| 28 | 500 |
| 29 | 560 |
| 30 | 630 |
| 31 | 700 |
| 32 | 800 |
| 33 | 900 |
| 34 | 1.0k |
| 35 | 1.1k |
| 36 | 1.2k |
| 37 | 1.4k |
| 38 | 1.6k |
| 39 | 1.8k |
| 40 | 2.0k |
| 41 | 2.2k |
| 42 | 2.5k |
| 43 | 2.8k |
| 44 | 3.2k |
| 45 | 3.6k |
| 46 | 4.0k |
| 47 | 4.5k |
| 48 | 5.0k |
| 49 | 5.6k |
| 50 | 6.3k |
| 51 | 7.0k |
| 52 | 8.0k |
| 53 | 9.0k |
| 54 | 10.0k |
| 55 | 11.0k |
| 56 | 12.0k |
| 57 | 14.0k |
| 58 | 16.0k |
| 59 | 18.0k |
| 60 | THRU(20.0k) |

### Table#3
### Reverb time

| Data | Value |
|---|---|
| 0 | 0.3 |
| 1 | 0.4 |
| 2 | 0.5 |
| 3 | 0.6 |
| 4 | 0.7 |
| 5 | 0.8 |
| 6 | 0.9 |
| 7 | 1.0 |
| 8 | 1.1 |
| 9 | 1.2 |
| 10 | 1.3 |
| 11 | 1.4 |
| 12 | 1.5 |
| 13 | 1.6 |
| 14 | 1.7 |
| 15 | 1.8 |
| 16 | 1.9 |
| 17 | 2.0 |
| 18 | 2.1 |
| 19 | 2.2 |
| 20 | 2.3 |
| 21 | 2.4 |
| 22 | 2.5 |
| 23 | 2.6 |
| 24 | 2.7 |
| 25 | 2.8 |
| 26 | 2.9 |
| 27 | 3.0 |
| 28 | 3.1 |
| 29 | 3.2 |
| 30 | 3.3 |
| 31 | 3.4 |
| 32 | 3.5 |
| 33 | 3.6 |
| 34 | 3.7 |
| 35 | 3.8 |
| 36 | 3.9 |
| 37 | 4.0 |
| 38 | 4.1 |
| 39 | 4.2 |
| 40 | 4.3 |
| 41 | 4.4 |
| 42 | 4.5 |
| 43 | 4.6 |
| 44 | 4.7 |
| 45 | 4.8 |
| 46 | 4.9 |
| 47 | 5.0 |
| 48 | 5.5 |
| 49 | 6.0 |
| 50 | 6.5 |
| 51 | 7.0 |
| 52 | 7.5 |
| 53 | 8.0 |
| 54 | 8.5 |
| 55 | 9.0 |
| 56 | 9.5 |
| 57 | 10.0 |
| 58 | 11.0 |
| 59 | 12.0 |
| 60 | 13.0 |
| 61 | 14.0 |
| 62 | 15.0 |
| 63 | 16.0 |
| 64 | 17.0 |
| 65 | 18.0 |
| 66 | 19.0 |
| 67 | 20.0 |
| 68 | 25.0 |
| 69 | 30.0 |

### Table#4
### AM Type (Chorus)

| Data | Value |
|---|---|
| 0 | off |
| 1 | 1xSft |
| 2 | 1xMid |
| 3 | 1xHrd |
| 4 | 2xSft |
| 5 | 2xMid |
| 6 | 2xHrd |
| 7 | 4xSft |
| 8 | 4xMid |
| 9 | 4xHrd |
| 10 | 8xSft |
| 11 | 8xMid |
| 12 | 8xHrd |
| 13 | RdSft |
| 14 | RdMid |
| 15 | RdHrd |

### Table#5
### Compressor Attack Time

| Data | Value |
|---|---|
| 0 | 1 |
| 1 | 2 |
| 2 | 3 |
| 3 | 4 |
| 4 | 5 |
| 5 | 6 |
| 6 | 7 |
| 7 | 8 |
| 8 | 9 |
| 9 | 10 |
| 10 | 12 |
| 11 | 14 |
| 12 | 16 |
| 13 | 18 |
| 14 | 20 |
| 15 | 23 |
| 16 | 26 |
| 17 | 30 |
| 18 | 35 |
| 19 | 40 |

### Table#6
### Compressor Release Time

| Data | Value |
|---|---|
| 0 | 10 |
| 1 | 15 |
| 2 | 25 |
| 3 | 35 |
| 4 | 45 |
| 5 | 55 |
| 6 | 65 |
| 7 | 75 |
| 8 | 85 |
| 9 | 100 |
| 10 | 115 |
| 11 | 140 |
| 12 | 170 |
| 13 | 230 |
| 14 | 340 |
| 15 | 680 |

### Table#7
### Compressor Ratio

| Data | Value |
|---|---|
| 0 | 1.0 |
| 1 | 1.5 |
| 2 | 2.0 |
| 3 | 3.0 |
| 4 | 5.0 |
| 5 | 7.0 |
| 6 | 10.0 |
| 7 | 20.0 |

### Table#8
### Wah Cutoff Freq.

| Data | Value |
|---|---|
| 0 | 20 |
| 1 | 32 |
| 2 | 45 |
| 3 | 63 |
| 4 | 80 |
| 5 | 100 |
| 6 | 125 |
| 7 | 160 |
| 8 | 200 |
| 9 | 250 |
| 10 | 280 |
| 11 | 315 |
| 12 | 350 |
| 13 | 400 |
| 14 | 500 |
| 15 | 560 |
| 16 | 630 |
| 17 | 700 |
| 18 | 800 |
| 19 | 1.0k |
| 20 | 1.2k |
| 21 | 1.4k |
| 22 | 1.6k |
| 23 | 1.8k |
| 24 | 2.0k |
| 25 | 2.2k |
| 26 | 2.5k |
| 27 | 2.8k |
| 28 | 3.2k |
| 29 | 3.6k |
| 30 | 4.0k |
| 31 | 5.0k |
| 32 | 5.6k |
| 33 | 6.3k |
| 34 | 7.0k |
| 35 | 8.0k |
| 36 | 9.0k |
| 37 | 10.0k |
| 38 | 12.0k |
| 39 | 14.0k |

# Common Control Matrix

| Parameter Name | | Ctrl Matrix : Param | Ctrl Matrix : Calc | Ctrl Matrix : Source | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Group | Param Name | Data Value | Multiply or Add | CC AT | Data Range | Vel KeyRnd | Data Range | KeyTrk | Data Range |
| --- | off | 0 | --- | --- | | --- | | --- | |
| | ComnVolume | 1 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) |
| | Comn Pan | 2 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) |
| | Vari Param | 3 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) |
| | Dly Return | 4 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) |
| | Rev Return | 5 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) |

# Control Change Modes

| CC | MODE1 | MODE2 |
|---|---|---|
| 1 | MODULATION | MODULATION |
| 2 | | |
| 3 | | SCENE SELECT |
| 4 | FOOT CONTROLLER | FOOT CONTROLLER |
| 5 | PORTAMENTO TIME | PORTAMENTO TIME |
| 6 | DATA ENTRY MSB | DATA ENTRY MSB |
| 7 | MAIN VOLUME | MAIN VOLUME |
| 8 | | LAYER MODE |
| 9 | | POLY/MONO MODE |
| 10 | PANPOT | PANPOT |
| 11 | EXPRESSION | EXPRESSION |
| 12 | RIBBON Z CONTROLLER | RIBBON Z CONTROLLER |
| 13 | RIBBON X CONTROLLER | RIBBON X CONTROLLER |
| 14 | | LFO RESET MODE |
| 15 | | LFO1 WAVE |
| 16 | | LFO1 SPEED |
| 17 | | LFO2 SPEED |
| 18 | | VCO1 PITCH MOD DEPTH |
| 19 | | VCF FILTER MOD DEPTH |
| 20 | | LFO1 DELAY |
| 21 | | VCO1 PITCH COARSE TUNE |
| 22 | | VCO SYNC PITCH |
| 23 | | VCO SYNC PITCH DEPTH |
| 24 | | VCO SYNC PITCH SOURCE |
| 25 | | PEG DEPTH |
| 26 | | PEG SWITCH |
| 27 | | PEG DECAY |
| 28 | | PEG SUSTAIN LEVEL |
| 29 | | FEG RELEASE |
| 30 | | VCF CUTOFF KBD TRACK |
| 31 | | AMP EG SUSTAIN LEVEL |
| 32 | | |
| 33 | | VCO ALGORITHM |
| 34 | | VCO SYNC PITCH MOD SW |
| 35 | | FM DEPTH |
| 36 | | FM SOURCE1 |
| 37 | | FM SOURCE2 |
| 38 | DATA ENTRY LSB | DATA ENTRY LSB |
| 39 | | MIXER NOISE LEVEL |
| 40 | | |
| 41 | | |
| 42 | | |
| 43 | | |
| 44 | | |
| 45 | | |
| 46 | | |
| 47 | | |
| 48 | | |
| 49 | | |
| 50 | | VCO1 WAVE TYPE |
| 51 | | VCO2 WAVE TYPE |
| 52 | | VCO2 PITCH COARSE TUNE |
| 53 | | VCO2 PITCH FINE TUNE |
| 54 | | VCO2 EDGE |
| 55 | | VCO2 PULSE WIDTH |
| 56 | | VCO2 PWM DEPTH |
| 57 | | VCO2 PITCH MOD DEPTH |
| 58 | | VCF HPF CUTOFF |
| 59 | | VCF FILTER TYPE |
| 60 | | FILTER EG VELOCITY SENS |
| 61 | | AMP EG VELOCITY SENS |
| 62 | | VCA VOLUME |
| 63 | | VCA FEEDBACK LEVEL |
| 64 | SUSTAIN SWITCH | SUSTAIN SWITCH |
| 65 | PORTAMENTO SWITCH | PORTAMENTO SWITCH |
| 66 | | |
| 67 | | |
| 68 | | MIXER VCO1 LEVEL |
| 69 | | MIXER VCO2 LEVEL |
| 70 | | RING MODULATOR LEVEL |
| 71 | HARMONIC CONTENT (VCF FILTER RESONANCE) | HARMONIC CONTENT (VCF FILTER RESONANCE) |
| 72 | RELEASE TIME (AMP EG RELEASE TIME) | RELEASE TIME (AMP EG RELEASE TIME) |
| 73 | ATTACK TIME (AMP EG ATTACK TIME) | ATTACK TIME (AMP EG ATTACK TIME) |
| 74 | BRIGHTNESS (VCF FILTER CUTOFF) | BRIGHTNESS (VCF FILTER CUTOFF) |
| 75 | DECAY TIME (AMP EG DECAY TIME) | DECAY TIME (AMP EG DECAY TIME) |
| 76 | | VCO1 EDGE |
| 77 | | VCO1 PITCH FINE TUNE |
| 78 | | VCO1 PULSE WIDTH |
| 79 | | VCO1 PWM DEPTH |
| 80 | | VCA AMP MOD DEPTH |
| 81 | | FILTER EG DEPTH |
| 82 | | FILTER EG ATTACK |
| 83 | | FILTER EG DECAY |
| 84 | | |
| 85 | | PORTAMENTO MODE |
| 86 | | VCO1 PWM SOURCE |
| 87 | | VCO2 PWM SOURCE |
| 88 | | |
| 89 | | |
| 90 | | ARPEGGIO/STEP SEQ SW |
| 91 | REVERB DEPTH | REVERB DEPTH |
| 92 | | |
| 93 | CHORUS (VARIATION) DEPTH | CHORUS (VARIATION) DEPTH |
| 94 | DELAY DEPTH | DELAY DEPTH |
| 95 | | |
| 96 | DATA ENTRY INC | DATA ENTRY INC |
| 97 | DATA ENTRY DEC | DATA ENTRY DEC |
| 00..95 | ASSIGNABLE CONTROLLER | ASSIGNABLE CONTROLLER |

# Free EG Track Parameter List

| Param (LCD) | Param (LCD) |
|---|---|
| off | FM Source1 |
| VCF Type | FM Source2 |
| VCF Cutoff | LFO1 Wave |
| Resonance | LFO1 Speed |
| FEG Depth | LFO1 Delay |
| FEG Attack | LFO2 Speed |
| FEG Decay | Scene Tune |
| FEG Sustin | PEG Decay |
| FEG Releas | PEG Depth |
| VCF Mod Dp | PEG Sw |
| FEG VelSns | Port Time |
| VCF KeyTrk | VCO1 Wave |
| HPF Cutoff | VCO1 Pitch |
| AEG Attack | VCO1 Fine |
| AEG Decay | VCO1 Edge |
| AEG Sustin | VCO1 PW |
| AEG Releas | VCO1PWM Dp |
| VCA Mod Dp | VCO1PWMSrc |
| AEG VelSns | VCO1PmodDp |
| VCA Feedbk | VCO2 Wave |
| VCA Volume | VCO2 Pitch |
| VCO1 Level | VCO2 Fine |
| VCO2 Level | VCO2 Edge |
| Ring Mod | VCO2 PW |
| NoiseLevel | VCO2PWM Dp |
| Algorithm | VCO2PWMSrc |
| Sync Pitch | VCO2PmodDp |
| SyncPit Dp | VarEF D:W |
| SyncPitSrc | Pitch Up |
| SyncPmodSw | Pitch Down |
| FM Depth | |

# Control Matrix List And Free EG Track Parameter List

| Parameter Name | | Ctrl Matrix : Param | Ctrl Matrix : Calc | Ctrl Matrix : Source | | | | | | Free EG : Trk Param |
|---|---|---|---|---|---|---|---|---|---|---|
| Group | Param Name | Data Value | Multiply or Add *1 | CC AT | Data Range | Vel KeyRnd | Data Range | KeyTrk | Data Range | Data Value |
| --- | off | 0 | --- | --- | | --- | | --- | | 0 |
| --- | Scene Tune | 1 | add | x | | O | (-64) - (+63) | x | | |
| | Pitch Up | 2 | add | O | (-24) - (+24) | x | | x | | |
| | Pitch Down | 3 | add | O | (-24) - (+24) | x | | x | | |
| PEG | PEG Decay | 4 | add *2 | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 1 |
| | PEG Depth | 5 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 2 |
| | PEG Sw | | | x | | x | | x | | 3 |
| | Port Time | 6 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 4 |
| LFO | LFO1 Wave | | | x | | x | | x | | 5 |
| | LFO1 Speed | 7 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 6 |
| | LFO1 Delay | 8 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 7 |
| | LFO2 Speed | 9 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 8 |
| SYNC/FM | Algorithm | | | x | | x | | x | | 9 |
| | Sync Pitch | 10 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-32) - (+32) | 10 |
| | SyncPit Dp | 11 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 11 |
| | SyncPitSrc | | | x | | x | | x | | 12 |
| | SyncPmodSw | | | x | | x | | x | | 13 |
| | FM Depth | 12 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 14 |
| | FM Source1 | | | x | | x | | x | | 15 |
| | FM Source2 | | | x | | x | | x | | 16 |
| VCO1 | VCO1 Wave | | | x | | x | | x | | 17 |
| | VCO1 Pitch | 13 | add | x | | x | | O | (-64) - (+63) | 18 |
| | VCO1 Fine | 14 | add | x | | x | | O | (-64) - (+63) | 19 |
| | VCO1 Edge | 15 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 20 |
| | VCO1 PW | 16 | add | O | (-64) - (+63) | x | | x | | 21 |
| | VCO1PWM Dp | 17 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 22 |
| | VCO1PWMSrc | | | x | | x | | x | | 23 |
| | VCO1PmodDp | 18 | add | O | (-63) - (+63) | x | | x | | 24 |
| VCO2 | VCO2 Wave | | | x | | x | | x | | 25 |
| | VCO2 Pitch | 19 | add | x | | x | | O | (-64) - (+63) | 26 |
| | VCO2 Fine | 20 | add | x | | x | | O | (-64) - (+63) | 27 |
| | VCO2 Edge | 21 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 28 |
| | VCO2 PW | 22 | add | O | (-64) - (+63) | x | | x | | 29 |
| | VCO2PWM Dp | 23 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 30 |
| | VCO2PWMSrc | | | x | | x | | x | | 31 |
| | VCO2PmodDp | 24 | add | O | (-63) - (+63) | x | | x | | 32 |
| MIX | VCO1 Level | 25 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 33 |
| | VCO2 Level | 26 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 34 |
| | Ring Mod | 27 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 35 |
| | NoiseLevel | 28 | mul | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 36 |
| VCF | FEG Attack | 29 | add *2 | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 37 |
| | FEG Decay | 30 | add *2 | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 38 |
| | FEG Sustin | 31 | add | O | (-64) - (+63) | x | | x | | 39 |
| | FEG Releas | 32 | add *2 | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 40 |
| | HPF Cutoff | 33 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 41 |
| | VCF Type | | | x | | x | | x | | 42 |
| | VCF Cutoff | 34 | add | O | (-64) - (+63) | O | (-64) - (+63) | (x) | VCF KeyTrk | 43 |
| | Resonance | 35 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 44 |
| | FEG Depth | 36 | mul | O | (-64) - (+63) | (Vel x)<br>KeyRnd | FEG VelSns<br>(-64) - (+63) | O | (-64) - (+63) | 45 |
| | FEG VelSns | | | x | | x | | x | | 46 |
| | VCF KeyTrk | | | x | | x | | x | | 47 |
| | VCF Mod Dp | 37 | add | O | (-64) - (+63) | x | | x | | 48 |
| VCA | AEG Attack | 38 | add *2 | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 49 |
| | AEG Decay | 39 | add *2 | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 50 |
| | AEG Sustin | 40 | add | O | (-64) - (+63) | x | | x | | 51 |
| | AEG Releas | 41 | add *2 | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | 52 |
| | VCA Feedbk | 42 | mul | O | (-64) - (+63) | x | | x | | 53 |
| | VCA Volume | 43 | mul | O | (-64) - (+63) | (Vel x)<br>KeyRnd | AEG VelSns<br>(-64) - (+63) | O | (-64) - (+63) | 54 |
| | AEG VelSns | | | x | | x | | x | | 55 |
| | VCA Mod Dp | 44 | add | O | (-64) - (+63) | x | | x | | 56 |
| EF | VarEF D:W *3 | 45 | add | O | (-64) - (+63) | O | (-64) - (+63) | O | (-64) - (+63) | --- |

* 1. Adds or multiplies Control Matrix setting to Knob parameter settings. Also does so when the same parameter is selected for multiple Control Matrix settings.
* 2. Adds the value calculated in "Rate" (positive setting makes the EG faster), while the value is calculated in "Time" for the Knob parameters.
* 3. No effect for the Aural Exciter, Compressor, Distortion, Over Drive and Guitar Amp Simulator. However, Direct Control functions even for these effects.

# MIDI Data Format

Many MIDI messages listed in the MIDI Data Format section are expressed in hexadecimal or binary numbers. Hexadecimal numbers may include the letter "H" as a suffix. The letter "n" indicates a certain whole number.
The chart below lists the corresponding decimal number for each hexadecimal/binary number.

| Decimal | Hexadecimal | Binary |
|---|---|---|
| 0 | 00 | 0000 0000 |
| 1 | 01 | 0000 0001 |
| 2 | 02 | 0000 0010 |
| 3 | 03 | 0000 0011 |
| 4 | 04 | 0000 0100 |
| 5 | 05 | 0000 0101 |
| 6 | 06 | 0000 0110 |
| 7 | 07 | 0000 0111 |
| 8 | 08 | 0000 1000 |
| 9 | 09 | 0000 1001 |
| 10 | 0A | 0000 1010 |
| 11 | 0B | 0000 1011 |
| 12 | 0C | 0000 1100 |
| 13 | 0D | 0000 1101 |
| 14 | 0E | 0000 1110 |
| 15 | 0F | 0000 1111 |
| 16 | 10 | 0001 0000 |
| 17 | 11 | 0001 0001 |
| 18 | 12 | 0001 0010 |
| 19 | 13 | 0001 0011 |
| 20 | 14 | 0001 0100 |
| 21 | 15 | 0001 0101 |
| 22 | 16 | 0001 0110 |
| 23 | 17 | 0001 0111 |
| 24 | 18 | 0001 1000 |
| 25 | 19 | 0001 1001 |
| 26 | 1A | 0001 1010 |
| 27 | 1B | 0001 1011 |
| 28 | 1C | 0001 1100 |
| 29 | 1D | 0001 1101 |
| 30 | 1E | 0001 1110 |
| 31 | 1F | 0001 1111 |
| 32 | 20 | 0010 0000 |
| 33 | 21 | 0010 0001 |
| 34 | 22 | 0010 0010 |
| 35 | 23 | 0010 0011 |
| 36 | 24 | 0010 0100 |
| 37 | 25 | 0010 0101 |
| 38 | 26 | 0010 0110 |
| 39 | 27 | 0010 0111 |
| 40 | 28 | 0010 1000 |
| 41 | 29 | 0010 1001 |
| 42 | 2A | 0010 1010 |
| 43 | 2B | 0010 1011 |
| 44 | 2C | 0010 1100 |
| 45 | 2D | 0010 1101 |
| 46 | 2E | 0010 1110 |
| 47 | 2F | 0010 1111 |
| 48 | 30 | 0011 0000 |
| 49 | 31 | 0011 0001 |
| 50 | 32 | 0011 0010 |
| 51 | 33 | 0011 0011 |
| 52 | 34 | 0011 0100 |
| 53 | 35 | 0011 0101 |
| 54 | 36 | 0011 0110 |
| 55 | 37 | 0011 0111 |
| 56 | 38 | 0011 1000 |
| 57 | 39 | 0011 1001 |
| 58 | 3A | 0011 1010 |
| 59 | 3B | 0011 1011 |
| 60 | 3C | 0011 1100 |
| 61 | 3D | 0011 1101 |
| 62 | 3E | 0011 1110 |
| 63 | 3F | 0011 1111 |

| Decimal | Hexadecimal | Binary |
|---|---|---|
| 64 | 40 | 0100 0000 |
| 65 | 41 | 0100 0001 |
| 66 | 42 | 0100 0010 |
| 67 | 43 | 0100 0011 |
| 68 | 44 | 0100 0100 |
| 69 | 45 | 0100 0101 |
| 70 | 46 | 0100 0110 |
| 71 | 47 | 0100 0111 |
| 72 | 48 | 0100 1000 |
| 73 | 49 | 0100 1001 |
| 74 | 4A | 0100 1010 |
| 75 | 4B | 0100 1011 |
| 76 | 4C | 0100 1100 |
| 77 | 4D | 0100 1101 |
| 78 | 4E | 0100 1110 |
| 79 | 4F | 0100 1111 |
| 80 | 50 | 0101 0000 |
| 81 | 51 | 0101 0001 |
| 82 | 52 | 0101 0010 |
| 83 | 53 | 0101 0011 |
| 84 | 54 | 0101 0100 |
| 85 | 55 | 0101 0101 |
| 86 | 56 | 0101 0110 |
| 87 | 57 | 0101 0111 |
| 88 | 58 | 0101 1000 |
| 89 | 59 | 0101 1001 |
| 90 | 5A | 0101 1010 |
| 91 | 5B | 0101 1011 |
| 92 | 5C | 0101 1100 |
| 93 | 5D | 0101 1101 |
| 94 | 5E | 0101 1110 |
| 95 | 5F | 0101 1111 |
| 96 | 60 | 0110 0000 |
| 97 | 61 | 0110 0001 |
| 98 | 62 | 0110 0010 |
| 99 | 63 | 0110 0011 |
| 100 | 64 | 0110 0100 |
| 101 | 65 | 0110 0101 |
| 102 | 66 | 0110 0110 |
| 103 | 67 | 0110 0111 |
| 104 | 68 | 0110 1000 |
| 105 | 69 | 0110 1001 |
| 106 | 6A | 0110 1010 |
| 107 | 6B | 0110 1011 |
| 108 | 6C | 0110 1100 |
| 109 | 6D | 0110 1101 |
| 110 | 6E | 0110 1110 |
| 111 | 6F | 0110 1111 |
| 112 | 70 | 0111 0000 |
| 113 | 71 | 0111 0001 |
| 114 | 72 | 0111 0010 |
| 115 | 73 | 0111 0011 |
| 116 | 74 | 0111 0100 |
| 117 | 75 | 0111 0101 |
| 118 | 76 | 0111 0110 |
| 119 | 77 | 0111 0111 |
| 120 | 78 | 0111 1000 |
| 121 | 79 | 0111 1001 |
| 122 | 7A | 0111 1010 |
| 123 | 7B | 0111 1011 |
| 124 | 7C | 0111 1100 |
| 125 | 7D | 0111 1101 |
| 126 | 7E | 0111 1110 |
| 127 | 7F | 0111 1111 |

### Additional Notes

- For example, 144 - 159(Decimal)/9nH/1001 0000 - 1001 1111(Binary) indicate the note-on messages for the channels 1 through 16 respectively. 176 - 191/BnH/1011 0000 - 1011 1111 indicate the control change messages for the channels 1 through 16 respectively. 192 - 207/CnH/1100 0000 - 1100 1111 indicate the program change messages for the channels 1 through 16 respectively. 240/F0H/1111 0000 is positioned at the beginning of data to indicate a system exclusive message. 247/F7H/1111 0111 is positioned at the end of the system exclusive message.
- aaH(Hexadecimal)/0aaaaaaa(Binary) indicates the data addresses. The data address consists of High, Mid and Low.
- bbH/0bbbbbbb indicates byte counts.
- ccH/0ccccccc indicates tcheck sums.
- ddH/0ddddddd indicates data/value.

### Synthesizer Section

(1) TRANSMIT FLOW

```
     SW1
MIDI<-[]—-+———-NOTE ON/OFF                9nH
OUT  |    |
     |    +———-CONTROL CHANGE             *1
     |    |      MODULATION               BnH,01H
     |    |      FOOT CONTROLLER          BnH,04H
     |    |      MAIN VOLUME              BnH,07H
     |    |      SUSTAIN SWITCH           BnH,40H
     |    |      RIBBON Z CONTROLLER      BnH,0CH
     |    |      RIBBON X CONTROLLER      BnH,0DH
     |    |      HARMONIC CONTENT         BnH,47H
     |    |      RELEASE TIME             BnH,48H
     |    |      ATTACK TIME              BnH,49H
     |    |      BRIGHTNESS               BnH,4AH
     |    |      DECAY TIME               BnH,4BH
     |    |      ASSIGNABLE               BnH,00H...5FH
     |    |
     |    +———-PROGRAM CHANGE             CnH
     |    |
     |    +———-CHANNEL AFTER TOUCH        DnH
     |    |
     |    +———-PITCH BEND CHANGE          EnH
     |SW2
     +-[]-+———-NOTE ON/OFF                9nH
     |    |SW4
     |    +-[]——CONTROL CHANGE
     |    |SW4  ASSIGNABLE                BnH,00H...5FH
     |    +-[]——CHANNEL AFTER TOUCH       DnH
     |
     |SW3
     +-[]-+———-SYSTEM EXCLUSIV MESSAGE
     |    |      <BULK DUMP>
     |    |———-SYSTEM                     F0H 43H 0nH 5CH bbH bbH 00H 00H 00H ddH.....ddH ccH F7H
     |    |———-USER SEQ                   F0H 43H 0nH 5CH bbH bbH 01H aaH 00H ddH.....ddH ccH F7H
     |    |———-CURRENT VOICE              F0H 43H 0nH 5CH bbH bbH 10H 00H 00H ddH.....ddH ccH F7H
     |    |———-CURRENT SEQ                F0H 43H 0nH 5CH bbH bbH 10H 0EH 00H ddH.....ddH ccH F7H
     |    |———-CURRENT SCENE1             F0H 43H 0nH 5CH bbH bbH 10H 10H 00H ddH.....ddH ccH F7H
     |    |———-CURRENT SCENE2             F0H 43H 0nH 5CH bbH bbH 10H 11H 00H ddH.....ddH ccH F7H
     |    |[SW5]—CURRENT SCENE_CTRL       F0H 43H 0nH 5CH bbH bbH 10H 12H 00H ddH.....ddH ccH F7H
     |    |———-USER VOICE                 F0H 43H 0nH 5CH bbH bbH 11H aaH 00H ddH.....ddH ccH F7H
     |    |
     |    |      <PARAMETER CHANGE>
     |    |———-SYSTEM                     F0H 43H 1nH 5CH 00H 00H aaH ddH.....ddH F7H
     |    |———-CURRENT VOICE              F0H 43H 1nH 5CH 10H 00H aaH ddH.....ddH F7H
     |    |———-CURRENT SEQ                F0H 43H 1nH 5CH 10H 0EH aaH ddH.....ddH F7H
     |    |———-CURRENT SCENE1             F0H 43H 1nH 5CH 10H 10H aaH ddH.....ddH F7H
     |    |———-CURRENT SCENE2             F0H 43H 1nH 5CH 10H 11H aaH ddH.....ddH F7H
     |    |[SW5]—CURRENT SCENE_CTRL       F0H 43H 1nH 5CH 10H 12H aaH ddH.....ddH F7H
     |
     +—-+————SYSTEM EXCLUSIV MESSAGE
     |          IDENTITY REPLY            F0H 7EH 7FH 06H 02H 43H 00H 41H ddH ddH
     |                                                                 00H 00H 00H 7EH F7H
     +——————ACTIVE SENSING                FEH
```

SW1 [] MIDI Transmit Channel
Depends on Keyboard Transmit Channel Set in System Data
SW2 [] MIDI Transmit Channel (ARPEGGIO/STEP SEQ)
Depends on Arpeggio/Step SEQ Transmit Channel in System Data
SW3 [] MIDI Device Number
If Device Number=all, then transmit Device Number=1
SW4 [] ARPEGGIO/STEP SEQ SELECT
Available only when Step Sequencer is selected.
SW5 [] SCENE SELECT
Available only when Scene Select is set to "Scene Control".

*1 If Control Change Mode is "mode2", then additional Control Change numbers are transmitted. (See (3-1-6).)

### (2) RECEIVE FLOW

```
MIDI ->—+————+
IN      |    |
     +—+     |
     |  +————+
     |  |SW6
     |  |-[]-+——NOTE OFF                   8nH
     |  |    |
     |  |    +——NOTE ON/OFF                9nH
     |  |    |
     |  |    +——CONTROL CHANGE             *1
     |  |    |    MODULATION               BnH,01H
     |  |    |    FOOT CONTROLLER          BnH,04H
     |  |    |    PORTAMENTO TIME          BnH,05H
     |  |    |    DATA ENTRY MSB           BnH,06H
     |  |    |    DATA ENTRY LSB           BnH,26H
     |  |    |    MAIN VOLUME              BnH,07H
     |  |    |    PANPOT                   BnH,0AH
     |  |    |    EXPRESSION               BnH,0BH
     |  |    |    SUSTAIN SWITCH           BnH,40H
     |  |    |    PORTAMENTO SWITCH        BnH,41H
     |  |    |    HARMONIC CONTENT         BnH,47H
     |  |    |    RELEASE TIME             BnH,48H
     |  |    |    ATTACK TIME              BnH,49H
     |  |    |    BRIGHTNESS               BnH,4AH
     |  |    |    REVERB DEPTH             BnH,5BH
     |  |    |    CHORUS(VARIATION) DEPTH  BnH,5DH
     |  |    |    DELAY DEPTH              BnH,5EH
     |  |    |    DATA ENTRY INC           BnH,60H
     |  |    |    DATA ENTRY DEC           BnH,61H
     |  |    |    ASSIGNABLE CONTROLLER    BnH,00H..5FH
     |  |    |    RPN
     |  |    |    PITCH BEND SENS          BnH,64H,00H,65H,00H,06H,mmH
     |  |    |    RPN RESET                BnH,64H,7FH,65H,7FH
     |  |    |    ALL SOUND OFF            BnH,78H,00H
     |  |    |    RESET ALL CONTROLLERS    BnH,79H,00H
     |  |    |    ALL NOTE OFF             BnH,7BH
     |  |    |    OMNI MODE OFF            BnH,7CH
     |  |    |    OMNI MODE ON             BnH,7DH
     |  |    |    MONO MODE                BnH,7EH
     |  |    |    POLY MODE                BnH,7FH
     |  |    |
     |  |    +——PROGRAM CHANGE             CnH
     |  |    |
     |  |    +——CHANNEL AFTER TOUCH        DnH
     |  |    |
     |  |    +——PITCH BEND CHANGE          EnH
     |  |SW3
     |  +-[]-+——SYSTEM EXCLUSIV MESSAGE
     |  |    |      <BULK DUMP>
     |  |    |———SYSTEM                    F0H 43H 0nH 5CH bbH bbH 00H 00H 00H ddH.....ddH ccH F7H
```

```
  |  |  |——USER SEQ                   F0H 43H 0nH 5CH bbH bbH 01H aaH 00H ddH.....ddH ccH F7H
  |  |  |——CURRENT VOICE              F0H 43H 0nH 5CH bbH bbH 10H 00H 00H ddH.....ddH ccH F7H
  |  |  |——CURRENT SEQ                F0H 43H 0nH 5CH bbH bbH 10H 0EH 00H ddH.....ddH ccH F7H
  |  |  |——CURRENT SCENE1             F0H 43H 0nH 5CH bbH bbH 10H 10H 00H ddH.....ddH ccH F7H
  |  |  |——CURRENT SCENE2             F0H 43H 0nH 5CH bbH bbH 10H 11H 00H ddH.....ddH ccH F7H
  |  |  |[SW5]-CURRENT SCENE_CTRL     F0H 43H 0nH 5CH bbH bbH 10H 12H 00H ddH.....ddH ccH F7H
  |  |  |——USER VOICE                 F0H 43H 0nH 5CH bbH bbH 11H aaH 00H ddH.....ddH ccH F7H
  |  |  |
  |  |  |   <PARAMETER CHANGE>
  |  |  |——DX1 MASTER TUNING          F0H 43H 1nH 04H 40H ddH F7H
  |  |  |——SYSTEM                     F0H 43H 1nH 5CH 00H 00H aaH ddH.....ddH F7H
  |  |  |——CURRENT VOICE              F0H 43H 1nH 5CH 10H 00H aaH ddH.....ddH F7H
  |  |  |——CURRENT VOICE_SEQ          F0H 43H 1nH 5CH 10H 0EH aaH ddH.....ddH F7H
  |  |  |——CURRENT SCENE1             F0H 43H 1nH 5CH 10H 10H aaH ddH.....ddH F7H
  |  |  |——CURRENT SCENE2             F0H 43H 1nH 5CH 10H 11H aaH ddH.....ddH F7H
  |  |  |[SW5]-CURRENT SCENE_CTRL     F0H 43H 1nH 5CH 10H 12H aaH ddH.....ddH F7H
  |  |  |
  |  |  |   <BULK DUMP REQUEST>
  |  |  |——SYSTEM                     F0H 43H 2nH 5CH 00H 00H 00H F7H
  |  |  |——USER SEQ                   F0H 43H 2nH 5CH 01H aaH 00H F7H
  |  |  |——CURRENT VOICE              F0H 43H 2nH 5CH 10H 00H 00H F7H
  |  |  |——CURRENT VOICE_SEQ          F0H 43H 2nH 5CH 10H 0EH 00H F7H
  |  |  |——CURRENT SCENE1             F0H 43H 2nH 5CH 10H 10H 00H F7H
  |  |  |——CURRENT SCENE2             F0H 43H 2nH 5CH 10H 11H 00H F7H
  |  |  |[SW5]-CURRENT SCENE_CTRL     F0H 43H 2nH 5CH 10H 12H 00H F7H
  |  |  |——USER VOICE                 F0H 43H 2nH 5CH 11H aaH 00H F7H
  |  |
  |  |——SYSTEM EXCLUSIV MESSAGE
  |       MIDI MASTER VOLUME          F0H 7FH 7FH 04H 01H llH mmH F7H
  |       IDENTITY REQUEST            F0H 7EH 0nH 06H 01H F7H
  |
  |———-+—SYSTEM EXCLUSIV MESSAGE
       |  TEST ENTRY                  F0H 43H 10H 18H 5AH 00H F7H
       |  LCD HARD COPY               F0H 43H 10H 18H 5AH 01H F7H
       |
       +——TIMING CLOCK                F8H
       +——ACTIVE SENSING              FEH
```

**SW3 []** **MIDI Device Number**
**SW4 []** **ARPEGGIO/STEP SEQ SELECT**
**Available only when Step Sequencer is selected.**
**SW5 []** **SCENE SELECT**
**Available only when Scene Select is set to “Scene Control”.**
**SW6 []** **MIDI Receive Channel**
**Depends on Receive Channel set in System Data.**

***1 If Control Change Mode is “mode2”, then additional Control Change numbers are received. (See (3-1-6).)**

## (3) TRANSMIT/RECEIVE DATA

### (3-1) CHANNEL VOICE MESSAGES

#### (3-1-1) NOTE OFF

```
STATUS          1000nnnn(8nH)          n = 0 ~ 15; MIDI RECEIVE CHANNEL
NOTE NUMBER     0kkkkkkk               k = 0(C-2)~127(G8)
VELOCITY        0vvvvvvv               ignores “v”
```

Reception only.

#### (3-1-2) NOTE ON/OFF

```
STATUS          1001nnnn(9nH)          n = 0 ~ 15; MIDI TRANSMIT/RECEIVE CHANNEL
NOTE NUMBER     0kkkkkkk               k = 0(C-2)~127(G8); when receiving
                                       k = 36(C1)~96(C6); when transmitting
                                       k = 0(C-2)~127(G8); selectable when transposed
VELOCITY        0vvvvvvv               (v≠0)             NOTE ON
                00000000               (v=0)             NOTE OFF
```

#### (3-1-3) PROGRAM CHANGE

```
STATUS          1100nnnn(CnH)          n = 0 ~ 15; MIDI TRANSMIT/RECEIVE CHANNEL
PROGRAM NUMBER  0ppppppp               p = 0 ~ 127
```

#### (3-1-4) CHANNEL AFTER TOUCH

```
STATUS          1101nnnn(DnH)          n = 0 ~ 15; MIDI TRANSMIT/RECEIVE CHANNEL
VALUE           0vvvvvvv               v = 0 ~ 127 AFTER TOUCH VALUE
```

#### (3-1-5) PITCH BEND CHANGE

```
STATUS          1110nnnn(EnH)          n = 0 ~ 15; MIDI TRANSMIT/RECEIVE CHANNEL
LSB             0vvvvvvv               PITCH BEND CHANGE LSB
MSB             0vvvvvvv               PITCH BEND CHANGE MSB

Transmitted with a resolution of 7 bits.
```

#### (3-1-6) CONTROL CHANGE

```
STATUS          1011nnnn(BnH)          n = 0 ~ 15; MIDI TRANSMIT/RECEIVE CHANNEL
CONTROL NUMBER  0ccccccc
CONTROL VALUE   0vvvvvvv

* TRANSMITTED CONTROL NUMBERS
c = 1      MODULATION             ; v = 0 - 127                    *1
c = 4      FOOT CONTROLLER        ; v = 0 - 127                    *1
c = 7      MAIN VOLUME            ; v = 0 - 127                    *1
c = 12     RIBBON Z CONTROLLER    ; v = 0 - 127                    *1
c = 13     RIBBON X CONTROLLER    ; v = 0:-64 - 64:0 - 127:+63     *1
c = 64     SUSTAIN SWITCH         ; v = 0-63:OFF, 64-127:ON        *1
c = 71     HARMONIC CONTENT       ; v = 0 - 127
c = 72     RELEASE TIME           ; v = 0 - 127
c = 73     ATTACK TIME            ; v = 0 - 127
c = 74     BRIGHTNESS             ; v = 0 - 127
c = 75     DECAY TIME             ; v = 0 - 127
c = 00..95 ASSIGNABLE CONT        ; v = 0 - 127

* RECEIVED CONTROL NUMBER
c = 1      MODULATION             ; v = 0 - 127
c = 4      FOOT CONTROLLER        ; v = 0 - 127                    *1
c = 5      PORTAMENTO TIME        ; v = 0 - 127
c = 6      DATA ENTRY MSB         ; v = 0 - 127                    *2
c = 38     DATA ENTRY LSB         ; v = 0 - 127                    *2
c = 7      MAIN VOLUME            ; v = 0 - 127
c = 10     EXPRESSION             ; v = 0 - 127
c = 12     RIBBON Z CONTROLLER    ; v = 0 - 127                    *1
c = 13     RIBBON X CONTROLLER    ; v = 0:-64 - 64:0 - 127:+63     *1
c = 64     SUSTAIN SWITCH         ; v = 0-63:OFF, 64-127:ON
c = 65     PORTAMENTO SWITCH      ; v = 0-63:OFF, 64-127:ON
c = 71     HARMONIC CONTENT       ; v = 0 - 127
           (VCF FILTER RESONANCE)
c = 72     RELEASE TIME           ; v = 0 - 127
           (AMP EG RELEASE TIME)
c = 73     ATTACK TIME            ; v = 0 - 127
           (AMP EG ATTACK TIME)
c = 74     BRIGHTNESS             ; v = 0 - 127
           (VCF FILTER CUTOFF)
c = 75     DECAY TIME             ; v = 0 - 127
c = 91     REVERB DEPTH           ; v = 0 - 127
c = 93     CHORUS(VARIATION) DEPTH ; v = 0 - 127
c = 94     DELAY DEPTH            ; v = 0 - 127
c = 96     DATA ENTRY INC         ; v = 127        *2
c = 97     DATA ENTRY DEC         ; v = 127        *2
c = 00..95 ASSIGNABLE CONTROLLER  ; v = 0 - 127
```

*1 Preset CONTROL CHANGE NUMBER at the factory. Can be changed.
*2 Used only when assigning the parameter with RPN numbers.

In addition, the following CONTROL NUMBERs will be transmitted/received when Control Change Mode 2 is selected. (These are unique to the AN1x and therefore not in accordance with the MIDI 1.0 standard.)

```
c = 3      SCENE SELECT             ; v = 0 - 127
c = 8      LAYER MODE               ; v = 0 - 127
c = 9      POLY/MONO MODE           ; v = 0 - 127
c = 14     LFO RESET MODE           ; v = 0 - 127
c = 15     LFO1 WAVE                ; v = 0 - 127
c = 16     LFO1 SPEED               ; v = 0 - 127
c = 17     LFO2 SPEED               ; v = 0 - 127
c = 18     VCO1 PITCH MOD DEPTH     ; v = 0 - 127
c = 19     VCF FILTER MOD DEPTH     ; v = 0 - 127
c = 20     LFO1 DELAY               ; v = 0 - 127
c = 21     VCO1 PITCH COARSE TUNE   ; v = 0 - 127
c = 22     VCO SYNC PITCH           ; v = 0 - 127
c = 23     VCO SYNC PITCH DEPTH     ; v = 0 - 127
c = 24     VCO SYNC PITCH SOURCE    ; v = 0 - 127
c = 25     PEG DEPTH                ; v = 0 - 127
c = 26     PEG SWITCH               ; v = 0 - 127
c = 27     PEG DECAY                ; v = 0 - 127
c = 28     PEG SUSTAIN LEVEL        ; v = 0 - 127
c = 29     FEG RELEASE              ; v = 0 - 127
c = 30     VCF CUTOFF KBD TRACK     ; v = 0 - 127
c = 31     AMP EG SUSTAIN LEVEL     ; v = 0 - 127
c = 33     VCO ALGORITHM            ; v = 0 - 127
c = 34     VCO SYNC PITCH MOD SW    ; v = 0 - 127
c = 35     FM DEPTH                 ; v = 0 - 127
c = 36     FM SOURCE1               ; v = 0 - 127
c = 37     FM SOURCE2               ; v = 0 - 127
c = 39     MIXER NOISE LEVEL        ; v = 0 - 127
c = 50     VCO1 WAVE TYPE           ; v = 0 - 127
c = 51     VCO2 WAVE TYPE           ; v = 0 - 127
c = 52     VCO2 PITCH COARSE TUNE   ; v = 0 - 127
c = 53     VCO2 PITCH FINE TUNE     ; v = 0 - 127
c = 54     VCO2 EDGE                ; v = 0 - 127
c = 55     VCO2 PULSE WIDTH         ; v = 0 - 127
c = 56     VCO2 PWM DEPTH           ; v = 0 - 127
c = 57     VCO2 PITCH MOD DEPTH     ; v = 0 - 127
c = 58     VCF HPF CUTOFF           ; v = 0 - 127
c = 59     VCF FILTER TYPE          ; v = 0 - 127
c = 60     FILTER EG VELOCITY SENS  ; v = 0 - 127
c = 61     AMP EG VELOCITY SENS     ; v = 0 - 127
c = 62     VCA VOLUME               ; v = 0 - 127
c = 63     VCA FEED BACK LEVEL      ; v = 0 - 127
c = 68     MIXER VCO1 LEVEL         ; v = 0 - 127
c = 69     MIXER VCO2 LEVEL         ; v = 0 - 127
c = 70     RING MODULATOR LEVEL     ; v = 0 - 127
c = 76     VCO1 EDGE                ; v = 0 - 127
c = 77     VCO1 PITCH FINE TUNE     ; v = 0 - 127
c = 78     VCO1 PULSE WIDTH         ; v = 0 - 127
c = 79     VCO1 PWM DEPTH           ; v = 0 - 127
c = 80     VCA AMP MOD DEPTH        ; v = 0 - 127
c = 81     FILTER EG DEPTH          ; v = 0 - 127
c = 82     FILTER EG ATTACK         ; v = 0 - 127
c = 83     FILTER EG DECAY          ; v = 0 - 127
c = 85     PORTAMENTO MODE          ; v = 0 - 127
c = 86     VCO1 PWM SOURCE          ; v = 0 - 127
c = 87     VCO2 PWM SOURCE          ; v = 0 - 127
c = 90     ARPEGGIO/STEP SEQ SW     ; v = 0 - 127
```

MODULATION is used to control vibrato depth.

PORTAMENTO TIME sets the time it takes for the pitch to reach the next note played when PORTAMENT SWITCH (CONTROL #65) is set to on. 0 is the minimum time and 127 is the maximum.

PANPOT position relatively changes accordiong to the preset value for each voice.

REVERB DEPTH controls reverb send level.
CHORUS DEPTH overwrites the Dry: Wet value of the Variation Effect directly for each voice.
DELAY DEPTH controls delay send level.

HARMONIC CONTENT adjusts the resonance preset for each voice. Setting a value adds to or subtracts from the center value 64 since it is an offset parameter. Higher values produce more resonance. The effective range may be narrower than the range you can designate depending on the selected voice.

RELEASE TIME adjusts the envelop release time preset for each voice. Setting a value adds to or subtracts from the center value 64 since it is an offset parameter.

ATTACK TIME adjusts the envelop attack time preset for each voice. Setting a value adds to or subtracts from the center value 64 since it is an offset parameter.

BRIGHTNESS adjusts the cutoff frequency preset for each voice. Setting a value adds to or subtracts from the center value 64 since it is an offset parameter. Lower valnes produce a warmer sound. The effective range may be narrower than the range you can designate depending on the selected voice.

### (3-2) CHANNEL MODE MESSAGES

```
STATUS            1011nnnn(BnH)          n = 0 ~ 15 ;MIDI RECEIVE CHANNEL
CONTROL NUMBER    0ccccccc               c = CONTROL NUMBER
CONTROL VALUE     0vvvvvvv               v = DATA VALUE
```

#### (3-2-1) ALL SOUND OFF (CONTROL NUMBER = 78H , DATA VALUE = 0)

All the sounds currently played including the channel messages such as note-on and hold-on in a certain channel are canceled when receiving this message.

#### (3-2-2) RESET ALL CONTROLLERS (CONTROL NUMBER = 79H , DATA VALUE = 0)

Resets the values set for the following controllers.

```
PITCH BEND CHANGE                  0 (Center)
AFTER TOUCH                        0 (Minimum)
MODULATION                         0 (Minimum)
EXPRESSION                       127 (Maximum)
SUSTAIN SWITCH                     0 (Off)
```

```
RPN                                 Not assigned; no change
PORTAMENTO SWITCH                     0 (Off)
FOOT CONTROLLER                       0 (Minimum)
RIBBON X CONTROLLER                  64 (No effect)
RIBBON Z CONTROLLER                   0 (Minimum)
VOLUME                              127 (Maximum)
PAN                                  64 (No effect)
REVERB DEPTH                        127 (Maximum)
CHORUS(VARIATION) DEPTH             No change
DELAY  DEPTH                        127 (Maximum)
```

(3-2-3) ALL NOTE OFF `(CONTROL NUMBER = 7BH , DATA VALUE = 0)`

All the notes currently set to on in a certain channel are muted when receiving this message. However, if Hold 1 or Sostenute is on, notes will continue sounding until these are turned off.

(3-2-4) OMNI MODE OFF `(CONTROL NUMBER = 7CH , DATA VALUE = 0)`

Performs the same function as when receiving ALL NOTES OFF.

(3-2-5) OMNI MODE ON `(CONTROL NUMBER = 7DH , DATA VALUE = 0)`

Performs the same function as when receiving ALL NOTES OFF. Not to change to OMNI ON.

(3-2-6) MONO `(CONTROL NUMBER = 7EH , DATA VALUE = 0)`

Performs the same function as when receiving ALL SOUNDS OFF. If the 3rd byte (mono) is within 0 through 16, the channel will be Mode4 (m = 1).

(3-2-7) POLY `(CONTROL NUMBER = 7FH , DATA VALUE = 0)`

Performs the same function as when receiving ALL SOUNDS OFF. The channel will be Mode3.

### (3-3) REGISTERED PARAMETER NUMBER

```
STATUS          1011nnnn(BnH)       n = 0 ~ 15; MIDI RECEIVE CHANNEL
LSB             01100100(64H)
RPN LSB         0ppppppp            p = RPN LSB(See chart below)
MSB             01100101(65H)
RPN MSB         0qqqqqqq            q = RPN MSB(See chart below)
DATA ENTRY MSB  00000110(06H)
DATA VALUE      0mmmmmmm            m = Data Value
DATA ENTRY LSB  00100110(26H)
DATA VALUE      0lllllll            l = Data Value
```

First, designate the parameter using RPN MSB/LSB numbers. Then, set its value with data entry MSB/LSB.

```
RPN     D.ENTRY
LSB MSB MSB LSB   PARAMETER NAME              DATA RANGE
00H 00H mmH ---   PITCH BEND SENSITIVITY      00H - 18H (0 - 24  semitones)
7FH 7FH --- ---   RPN RESET                   Cancels RPN numbers
                                              The internal value is not affected.
```

## (3-4) SYSTEM REAL TIME MESSAGES

### (3-4-1) ACTIVE SENSING

```
STATUS          11111110            (FEH)
```

Transmitted every 260 msec.

Once this code is received, the AN1x starts sensing. When no status data is received for over approximately 360 ms, MIDI receiving buffer will be cleared, and the sounds currently played and the sustain switch are forcibly turned off. In this case, each control data will be reset to a certain value.

### (3-4-2) TIMING CLOCK(Receive only)

```
STATUS          11111000            (F8H)
```

Selects whether the tempo clock of the Arpeggiator, Step Sequencer and FreeEG is controlled by internal clock or the timing clock of an external device via MIDI.

## (3-5) SYSTEM EXCLUSIVE MESSAGE

### (3-5-1) UNIVERSAL NON REALTIME MESSAGE

#### (3-5-1-1) IDENTITY REQUEST (Receive only)

```
F0H 7EH 0nH 06H 01H F7H
```

#### (3-5-1-2) IDENTITY REPLY (Transmit only)

```
F0H 7EH 7FH 06H 02H 43H 00H 41H ddH ddH 00H 00H 00H vvH F7H
dd;Device Number CodeÅ@AN1x: 1A 02
vv;TG Support Level    AN1x: 7E
```

### (3-5-2) UNIVERSAL REALTIME MESSAGE

#### (3-5-2-1) MIDI MASTER VOLUME

```
F0H 7FH 7FH 04H 01H llH mmH F7H
Sets the MASTER VOLUME value.
The value “mm” is used to set the master volume (the value “ll” will be ignored).
```

### (3-5-3) PARAMETER CHANGE

#### (3-5-3-1) DX1 MASTER TUNING

```
F0H 43H 1nH 04H 40H ddH F7H
```

When AN1x receives the DX1 compatible format, MASTER TUNE in the System Data will be changed.
The value “dd” is used to set the master tuning.

```
dd = -64(00H) ~ 0(40H) ~ +63(7FH)
```

#### (3-5-3-2) PARMETER CHANGE

```
11110000         F0              Exclusive status
01000011         43              YAMAHA ID
0001nnnn         1n              device Number
01011100         5C              Model ID
0aaaaaaa         aaaaaaa         Address High
0aaaaaaa         aaaaaaa         Address Mid
0aaaaaaa         aaaaaaa         Address Low
0ddddddd         ddddddd         Data
|                                |
11110111         F7              End of Exclusive
```

For parameters with data size of 2, transmit the appropriate number of data bytes.
See MIDI Data Table for Address and Byte Count.

The following six types of data are transmitted/received.

```
System Data
Current Voice Common Data
Current Voice Scene1 Data
Current Voice Scene2 Data
Current Voice Scene Ctrl Data
Current Step SEQ Data
```

### (3-5-4) BULK DUMP

```
11110000         F0              Exclusive status
01000011         43              YAMAHA ID
0000nnnn         0n              device Number
01011100         5C              Model ID
0bbbbbbb         bbbbbbb         ByteCount
0bbbbbbb         bbbbbbb         ByteCount
0aaaaaaa         aaaaaaa         Address High
0aaaaaaa         aaaaaaa         Address Mid
0aaaaaaa         aaaaaaa         Address Low
00000000         00              Data
|                                |
0ccccccc         ccccccc         Check-sum
11110111         F7              End of Exclusive
```

See MIDI Data Table for Address and Byte Count.
The Check sum is the value that results in a value of 0 for the lower 7 bits when the Byte Count, Start Address, Data and Check sum itself are added.

The following eight types of data are transmitted/received.

```
System Data
Current Voice Common Data
Current Voice Scene1 Data
Current Voice Scene2 Data
Current Voice Scene Ctrl Data
Current Step SEQ Data
User Voice Data
User Step SEQ Data
```

### (3-5-5) DUMP REQUEST

```
11110000         F0              Exclusive status
01000011         43              YAMAHA ID
0010nnnn         2n              device Number
01011100         5C              Model ID
0aaaaaaa         aaaaaaa         Address High
0aaaaaaa         aaaaaaa         Address Mid
0aaaaaaa         aaaaaaa         Address Low
11110111         F7              End of Exclusive
```

See MIDI Data Table for Address and Byte Count.

The following eight types of data are received.

```
System Data
Current Voice Common Data
Current Voice Scene1 Data
Current Voice Scene2 Data
Current Voice Scene Ctrl Data
Current Step SEQ Data
User Voice Data
User Step SEQ Data
```

### (4) CONFIGURATION OF KEYBOARD, ARPEGGIATOR AND TONE GENERATOR

```
+-----------+                 +-------------+
|  MIDI IN  |                 |   KEYBOARD  |
+-----------+                 +-------------+
       |                             |
       V                             |
[Receive Channel]                    |
       |                             |
       V                             V
       +----------->+<--[LOCAL SW]<----+-------------------------------+
       |           |                 |                               |
       |           |                 V                               |
       |           |             [LOCAL SW]                          |
       |           |                 |                               |
       |           V                 |                               |
       |    +--------------+         |                               |
       |    |ARPEGGIATOR/  |         |                               |
       |    | STEP SEQUENCER|        |                               |
       |    +--------------+         |                               |
       |           |                 |                               |
       |           +-----------------|---------------+               |
       |           |                 |               |               |
       |           |                 |          [PATTERN             |
       V           V                 V          Transmit Channel]    |
       +-----------+-------------------+             |               |
                   |                                 |          [Transmit Channel]
                   |                                 |               |
                   |                                 +---------------+
                   |                                 |
                   V                                 V
       +----------------------+             +------------------+
       |     TONE GENERATOR   |             |     MIDI OUT     |
       +----------------------+             +------------------+
```

The tone generator will respond to both note data received via MIDI and the data generated by the AN1x such as note data and control data.

ALL SOUNDS OFF clears all the sounds in the specific channel played by both the keyboard and the data via MIDI.

## MIDI Data Table <1-1>

Parameter Base Address

| Parameter Change | Address (H) | (M) | (L) | Description | |
|---|---|---|---|---|---|
| SYSTEM | 00 | 00 | 00 | System | |
| USER PATTERN | 01 | 00 | 00 | User Pattern 1 | (only Bulk Dump) |
| | : | | | | |
| | 01 | 7F | 00 | User Pattern 128 | (only Bulk Dump) |
| CURRENT VOICE | 10 | 00 | 00 | Current Voice Common Buffer | |
| | 10 | 10 | 00 | Current Voice Scene 1 Buffer | |
| | 10 | 11 | 00 | Current Voice Scene 2 Buffer | |

| | | | | |
|---|---|---|---|---|
| | 10 | 12 | 00 | Current Voice Scene Ctrl Buffer |
| CURRENT PATTERN | 10 | 0E | 00 | Current Pattern Buffer |
| USER VOICE | 11 | 00 | 00 | User Voice 1 (only Bulk Dump) |
| | : | | | |
| | 11 | 7F | 00 | User Voice 128 (only Bulk Dump) |

## MIDI Data Table <1-2>

MIDI Parameter Change Table (System)

| Address (H) | Size (H) | Data (H) | Prameter Name | Description | Default value(H) |
|---|---|---|---|---|---|
| 00 00 00 | 2 | 0AA...356 | Master tune | -100.0(0AA)...+100.0 cent(356) | 200(+0) |
| 02 | 1 | 1C...64 | Keyboard Transpose | -36(1C)...+36(64) | 40(+0) |
| 03 | 1 | 00...05 | Keyboard Velocity Curve | normal(0),soft1(1),soft2(2), | 04(wide) |
| | | | easy(3),wide(4),hard(5) | | |
| 04 | 1 | 00...7F | Keyboard Fixed Velocity | off(0),1...127 | 00(off) |
| 05 | 1 | 00...04 | Effect Bypass | off(0),rev(1),dly(2),rev&dly(3), | |
| | | | all(4) | | 00(off) |
| 06 | 1 | 00...7F | Keyboard Transmit Channel | 1(0)...16(0F),off(7F) | 00(1) |
| 07 | 1 | 00...7F | Arpeggio/Step Seq Transmit Channel | 1(0)...16(0F),off(7F) | 00(1) |
| 08 | 1 | 00...7F | Receive Channel1 | 1(0)...16(0F),off(7F) | 00(1) |
| 09 | 1 | 00...7F | Receive Channel2 | 1(0)...16(0F),off(7F) | 00(1) |
| 0a | 1 | 00...11 | Midi Device Number | 1(0)...16(0F),all(10),off(11) | 10(all) |
| 0b | 1 | 00...01 | Midi Local | off(0),on(1) | 01(on) |
| 0c | 1 | 00...60 | Scene Ctrl Number | off(0),1...95,AT(60) | 01(1) |
| 0d | 1 | 00...60 | MW Ctrl Number | off(0),1...95,AT(60) | 01(1) |
| 0e | 1 | 00...60 | FV Ctrl Number | off(0),1...95,AT(60) | 07(7) |
| 0f | 1 | 00...60 | FC Ctrl Number | off(0),1...95,AT(60) | 04(4) |
| 10 | 1 | 00...60 | FS Ctrl Number | off(0),1...95,AT(60) | 40(64) |
| 11 | 1 | 00...60 | Ribbon X Ctrl Number | off(0),1...95,AT(60) | 0d(13) |
| 12 | 1 | 00...60 | Ribbon Z Ctrl Number | off(0),1...95,AT(60) | 0c(12) |
| 13 | 1 | 00...62 | Assinable Knob 1 Number | off(0),1...95,AT(60), | 28(41) |
| | | | Data Entry(61),Tempo(62) | | |
| 14 | 1 | 00...62 | Assinable Knob 2 Number | off(0),1...95,AT(60), | 29(42) |
| | | | Data Entry(61),Tempo(62) | | |
| 15 | 1 | 00...62 | Assinable Knob 3 Number | off(0),1...95,AT(60), | 2a(43) |
| | | | Data Entry(61),Tempo(62) | | |
| 16 | 1 | 00...62 | Assinable Knob 4 Number | off(0),1...95,AT(60), | 2b(44) |
| | | | Data Entry(61),Tempo(62) | | |
| 17 | 1 | 00...62 | Assinable Knob 5 Number | off(0),1...95,AT(60), | 2c(45) |
| | | | Data Entry(61),Tempo(62) | | |
| 18 | 1 | 00...62 | Assinable Knob 6 Number | off(0),1...95,AT(60), | 2d(46) |
| | | | Data Entry(61),Tempo(62) | | |
| 19 | 1 | 00...62 | Assinable Knob 7 Number | off(0),1...95,AT(60), | 2e(47) |
| | | | Data Entry(61),Tempo(62) | | |
| 1a | 1 | 00...62 | Assinable Knob 8 Number | off(0),1...95,AT(60), | 2f(48) |
| | | | Data Entry(61),Tempo(62) | | |
| 1b | 1 | 00...00 | reserved | 0...0 | 00 |

Total size 1C

## MIDI Data Table <1-3>

MIDI Parameter Change Table ( Current Voice Common Buffer)

| Address (H) | Size (H) | Data (H) | Prameter Name | Description | | Default value(H) |
|---|---|---|---|---|---|---|
| 10 00 00 | 1 | 20...7F | Voice Name 1 | Ascii Code | | I |
| 01 | 1 | 20...7F | Voice Name 2 | Ascii Code | | n |
| 02 | 1 | 20...7F | Voice Name 3 | Ascii Code | | i |
| 03 | 1 | 20...7F | Voice Name 4 | Ascii Code | | t |
| 04 | 1 | 20...7F | Voice Name 5 | Ascii Code | | N |
| 05 | 1 | 20...7F | Voice Name 6 | Ascii Code | | o |
| 06 | 1 | 20...7F | Voice Name 7 | Ascii Code | | r |
| 07 | 1 | 20...7F | Voice Name 8 | Ascii Code | | m |
| 08 | 1 | 20...7F | Voice Name 9 | Ascii Code | | a |
| 09 | 1 | 20...7F | Voice Name 10 | Ascii Code | | l |
| 0a | 1 | 00...16 | Voice Category | —,Pf...Sg | | — |
| 0b | 1 | 01...03 | Common Scene Select | Scene1(1),Scene2(2), Scene Ctrl(3) | | 1(scene1) |
| 0c | 1 | 00...05 | Layer Mode | sinlge(0),unison(1),dual(2), dual-unison(3),split(4), split-unison(5) | | 00(single) |
| 0d | 1 | 00...02 | Layer Pan | off(0),alternate(1),random(2) | | 00(off) |
| 0e | 1 | 00...32 | Layer Separation | 0...32 | | 00 |
| 0f | 1 | 00...32 | Unison Detune | 0...32 | | 06 |
| 10 | 2 | 27...F0 | Common Tempo | midi(27),40(28)...240(F0) | | 8C(140) |
| 12 | 1 | 00...7F | Common Split Point | C-2(0)...G8(7F) | | 3C(C3) |
| 13 | 1 | 00...01 | Common Portamento Switch | off(0)...on(1) | | 00(off) |
| 14 | 1 | 00...72 | Common Ctrl Matrix Source1 | off(0)...Assign Knob8(72) | *1 | 00 |
| 15 | 1 | 00...05 | Common Ctrl Matrix Param 1 | off(0)...Rev Return(5) | *1 | 00 |
| 16 | 1 | 00...7F | Common Ctrl Matrix Depth 1 | -64...+63 | *1 | 40(+0) |
| 17 | 1 | 00...72 | Common Ctrl Matrix Source2 | off(0)...Assign Knob8(72) | *1 | 00 |
| 18 | 1 | 00...05 | Common Ctrl Matrix Param 2 | off(0)...Rev Return(5) | *1 | 00 |
| 19 | 1 | 00...7F | Common Ctrl Matrix Depth 2 | -64...+63 | *1 | 40(+0) |
| 1a | 1 | 00...0D | Vari-Ef Type | See Effect Type List | | 00(=Chorus 1) |
| 1b | 1 | 00...00 | reserved | 00 | | 00 |
| 1c | 2 | 00...7F | Vari-Ef Param 1 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | | 00...7F | Vari-Ef Param 1 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 1e | 2 | 00...7F | Vari-Ef Param 2 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | | 00...7F | Vari-Ef Param 2 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 20 | 2 | 00...7F | Vari-Ef Param 3 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | | 00...7F | Vari-Ef Param 3 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 22 | 2 | 00...7F | Vari-Ef Param 4 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | | 00...7F | Vari-Ef Param 4 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 24 | 2 | 00...7F | Vari-Ef Param 5 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | | 00...7F | Vari-Ef Param 5 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 26 | 2 | 00...7F | Vari-Ef Param 6 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | | 00...7F | Vari-Ef Param 6 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 28 | 1 | 04...28 | 3-Band EQ Low Freq | 32Hz(04)...2.0kHz(28) | | 11(140Hz) |
| 29 | 1 | 34...4C | 3-Band EQ Low Gain | 12dB(34)...0(40)...+12dB(4C) | | 40(+0dB) |
| 2a | 1 | 0E...36 | 3-Band EQ Mid Freq | 100Hz(0E)...10.0kHz(36) | | 28(2.0kHz) |
| 2b | 1 | 34...4C | 3-Band EQ Mid Gain | -12dB(34)...0(40)...+12dB(4C) | | 40(+0dB) |
| 2c | 1 | 0A...78 | 3-Band EQ Mid Resonance(Q) | 1.0(0A)...12.0(78) | | 0A(1.0) |
| 2d | 1 | 1C...3A | 3-Band EQ High Freq | 500Hz(1C)...16.0kHz(38) | | 34(8.0kHz) |
| 2e | 1 | 34...4C | 3-Band EQ High Gain | -12dB(34)...0(40)...+12dB(4C) | | 40(+0dB) |
| 2f | 1 | 00...01 | Dly-Rev Connection | seri(0),para(1) | | 00(seri) |
| 30 | 1 | 00...0D | Dly-Ef Type | See Effect Type List | | 00(=Delay L,C,R) |
| 31 | 1 | 00...00 | Dly-Ef Return | 0...127 | | 00 |
| 32 | 2 | 00...7F | Dly-Ef Param 1 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | | 00...7F | Dly-Ef Param 1 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 34 | 2 | 00...7F | Dly-Ef Param 2 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | | 00...7F | Dly-Ef Param 2 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 36 | 2 | 00...7F | Dly-Ef Param 3 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | | 00...7F | Dly-Ef Param 3 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 38 | 2 | 00...7F | Dly-Ef Param 4 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | | 00...7F | Dly-Ef Param 4 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 3a | 2 | 00...7F | Dly-Ef Param 5 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | | 00...7F | Dly-Ef Param 5 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 3c | 2 | 00...7F | Dly-Ef Param 6 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | | 00...7F | Dly-Ef Param 6 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 3e | 2 | 00...7F | Dly-Ef Param 7 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | | 00...7F | Dly-Ef Param 7 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 40 | 1 | 00...0D | Rev-Ef Type | See Effect Type List | | 00(=Hall 1) |
| 41 | 1 | 00...00 | Rev-Ef Return | 0...127 | | 00 |
| 42 | 2 | 00...7F | Rev-Ef Param 1 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | | 00...7F | Rev-Ef Param 1 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 44 | 2 | 00...7F | Rev-Ef Param 2 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | | 00...7F | Rev-Ef Param 2 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 46 | 2 | 00...7F | Rev-Ef Param 3 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | | 00...7F | Rev-Ef Param 3 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 48 | 2 | 00...7F | Rev-Ef Param 4 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | | 00...7F | Rev-Ef Param 4 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 4a | 2 | 00...7F | Rev-Ef Param 5 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | | 00...7F | Rev-Ef Param 5 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 4c | 2 | 00...7F | Rev-Ef Param 6 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | | 00...7F | Rev-Ef Param 6 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 4e | 2 | 00...7F | Rev-Ef Param 7 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | | 00...7F | Rev-Ef Param 7 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 50 | 1 | 00...01 | Arpeggio/Step Seq on/off | off(0),on(1) | | 00(off) |
| 51 | 1 | 00...01 | Arpeggio/Step Seq Select | Arpeggio(0),Step Seq(1) | | 00(Arpeggio) |
| 52 | 1 | 00...1D | Arpeggio Type/ Step Seq Ptn No | UpDwn1(0)...BassLineD(1D) | *2 | 00(UpDwn1) |
| | | 00...7F | | C#1:Usr001(0)...Usr128(7F) | *3 | |
| 53 | 1 | 00...01 | Arpeggio/Step Seq Kbd Mode | chord(0),chord&normal(1) | *4 | 00(chord) |
| | | 00...03 | | normal(0),note-shift&normal(1), | *5 | |
| | | | | ptn-sel&normal(2), | | |
| | | | | pt-sel&note-shift(3) | *6 | |
| 54 | 1 | 00...01 | Arpeggio/Step Hold | off(0),on(1) | | 00(off) |
| | | 00...02 | | off(0),mode1(1),mode2(2) | *7 | |
| 55 | 1 | 00...02 | Arpeggio/Step Seq Scene Sw. | Scene1(1),Scene2(2),both(3) | | 03(both) |
| 56 | 1 | 00...09 | Arpeggio Subdivide | 3/8(0)...1/32(9) | | 08(1/16) |
| 57 | 1 | 32...53 | Play Effect Swing | 50%(32)...83%(53) | *8 | 32(50%) |
| 58 | 2 | 00...C8 | Play Effect Velocity | realtime(0),1%(1)...200%(C8) | | 64(100%) |
| 5a | 2 | 01...C8 | Play Effect Gate Time | 1%(1)...200%(C8) | *8 | 64(100%) |
| 5c | 1 | 00...02 | Free EG Trigger | free(0),keyboard&midi(1),all(2) | | 01(kbd&midi) |
| 5d | 1 | 00...04 | Free EG Loop Type | off(0),fwd(1),fwd-half(2), alternate(3),alternate-half(4) | | 04(Alt-half) |
| 5e | 1 | 02...60 | Free EG Length | 1/2bar(2),1bar(3),3/2bar(4), 2bar(5),3bar(6),4bar(7),6bar(8), 8bar(9),1.0sec(0A)...8.0sec(50) ...16.0sec(60) | | 28(4.0sec) |
| 5f | 1 | 00...7F | Free EG Keyboard Track | -64...+63 | | 40(+0) |
| 60 | 1 | 00...38 | Free EG Trk Param 1 | off(0)...VCA Mod Depth(38) | *9 | 00(off) |
| 61 | 1 | 00...0F | Free EG Trk Scene Switch 1 | off(0),Scene1(1),Scene2(2),both(3) bit2..3=track sw's back up | | 00(off) |
| 62 | 1 | 00...38 | Free EG Trk Param 2 | off(0)...VCA Mod Depth(38) | *9 | 00(off) |
| 63 | 1 | 00...0F | Free EG Trk Scene Switch 2 | off(0),Scene1(1),Scene2(2),,both(3) bit2..3=track sw's back up | | 00(off) |
| 64 | 1 | 00...38 | Free EG Trk Param 3 | off(0)...VCA Mod Depth(38) | *9 | 00(off) |
| 65 | 1 | 00...0F | Free EG Trk Scene Switch 3 | off(0),Scene1(1),Scene2(2),both(3) bit2..3=track sw's back up | | 00(off) |
| 66 | 1 | 00...38 | Free EG Trk Param 4 | off(0)...VCA Mod Depth(38) | *9 | 00(off) |
| 67 | 1 | 00...0F | Free EG Trk Scene Switch 4 | off(0),Scene1(1),Scene2(2),both(3) bit2..3=track sw's back up | | 00(off) |
| 00 68 | 2 | 00...01 | Free EG Trk1 Data1 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk1 Data1 LSB | 0...127 | *10 | 00 |
| 00 6a | 2 | 00...01 | Free EG Trk1 Data2 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk1 Data2 LSB | 0...127 | *10 | 00 |
| : : | : | | : | : | | : |
| 03 66 | 2 | 00...01 | Free EG Trk1 Data192 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk1 Data192 LSB | 0...127 | *10 | 00 |
| 03 68 | 2 | 00...01 | Free EG Trk2 Data1 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk2 Data1 LSB | 0...127 | *10 | 00 |
| 03 6a | 2 | 00...01 | Free EG Trk2 Data2 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk2 Data2 LSB | 0...127 | *10 | 00 |
| : : | : | | : | : | | : |
| 06 66 | 2 | 00...01 | Free EG Trk2 Data192 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk2 Data192 LSB | 0...127 | *10 | 00 |
| 06 68 | 2 | 00...01 | Free EG Trk3 Data1 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk3 Data1 LSB | 0...127 | *10 | 00 |
| 06 6a | 2 | 00...01 | Free EG Trk3 Data2 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk3 Data2 LSB | 0...127 | *10 | 00 |
| : : | : | | : | : | | : |
| 09 66 | 2 | 00...01 | Free EG Trk3 Data128 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk3 Data128 LSB | 0...127 | *10 | 00 |
| 09 68 | 2 | 00...01 | Free EG Trk4 Data1 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk4 Data1 LSB | 0...127 | *10 | 00 |
| 09 6a | 2 | 00...01 | Free EG Trk4 Data2 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk4 Data2 LSB | 0...127 | *10 | 00 |
| : : | : | | : | : | | : |
| 09 66 | 2 | 00...01 | Free EG Trk4 Data128 MSB | 0...1 | *10 | 01 |
| | | 00...7F | Free EG Trk4 Data128 LSB | 0...127 | *10 | 00 |

TOTAL SIZE 668

*1 : see other table (Ctrl Matrix Paramter List)
*2 : see other table (Arpeggio Type List)
*3 : become available only when Step Seq is selected and Kbd Mode ='ptn-sel&norm' or 'ptn-sel&note-shift'
*4 : only when Arpeggio is selected
*5 : only when Step Seq is selected
*6 : except *7
*7 : only when Step Seq is selected and Kbd Mode = 'ptn-sel&norm' or 'ptn-sel&note-shift'
*8 : become available only when Step Seq is selected
*9 : see other table (Free EG Track Paramter List)
*10: only Bulk Dump (not transmitted and received as parameter change)

## MIDI Data Table <1-4>

MIDI Parameter Change Table ( Current Voice Scene Buffer )

| Address (H) | Size (H) | Data (H) | Parameter Name | Description | | Default Value(H) |
|---|---|---|---|---|---|---|
| 10 1S 00 | 1 | 00...02 | Poly Mode | poly(0),mono(1),legato(2) | | 00(poly) |
| 01 | 1 | 2C...54 | Pich Up (PB Range +) | -24(2C)...+24(54) | | 42(+2) |
| 02 | 1 | 2C...54 | Pich Down (PB Range -) | -24(2C)...+24(54) | | 3E(-2) |
| 03 | 1 | 00...7F | PEG Decay | -64...+63 | | 40(+0) |
| 04 | 1 | 00...7F | PEG Depth | -64...+63 semitones | | 40(+0) |
| 05 | 1 | 01...03 | PEG Switch | VCO1(1),VCO2(2),both(3) | | 03(both) |
| 06 | 1 | 00...01 | Portamento Mode | normal(0),sustain-key(1) | *1 | 00(normal) |
| | | | | fuul-time(0),fingerd(1) | *2 | |
| 07 | 1 | 00...7F | Portamento Time | 0...127 | | 44(68) |
| 08 | 1 | 00...01 | LFO Reset Mode | off(0),key-on(1) | | 00(off) |
| 09 | 1 | 00...14 | LFO1 Wave | sine(0)...offset-s/h2(14) | *3 | 00(sine) |
| 0a | 2 | 00...FF | LFO1 Speed | 1(0)...256(FF) | | 1F(32) |
| 0c | 1 | 00...7F | LFO1 Delay | 0...127 | | 00 |
| 0d | 2 | 00...FF | LFO2 Speed | 1(0)...256(FF) | | 57(88) |
| 0f | 1 | 00...3 | VCO Algorithm (Osillator Sync & FM) | Sync-off&FM-on(0), Sync-on&FM-both(1), Sync-on&FM-master(2), Sync-on&FM-slave(3) | | 00(Sync-off&FM-on) |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 1 | 00...7F | Sync Pitch | -64...+63 | | 40(+0) |
| 11 | 1 | 00...7F | Sync Pitch Depth | -64...+63 | | 40(+0) |
| 12 | 1 | 00...04 | Sync Pitch Source | fixed(0),PEG(1),FEG(2),LFO1(3),<br>LFO2(4) | | 00(fixed) |
| 13 | 1 | 01...03 | Sync Pitch Mod Switch | master(1),slave(2),both(3) | | 03(both) |
| 14 | 1 | 00...7F | FM Depth | -64...+63 | | 40(+0) |
| 15 | 1 | 00...04 | FM Source 1 | fixed(0),PEG(1),FEG(2),LFO1(3),<br>LFO2(4) | | 00(fixed) |
| 16 | 1 | 00...06 | FM Source 2 | VCO2(0),VCO1(1),VCO1-sub(2),<br>PEG(3),FEG(4),LFO1(5),LFO2(6) | | 00(VCO2) |
| 17 | 1 | 00...03 | VCO1 Wave | saw(0),pulse(1),saw2(2),mix(3) | *4 | 00(saw) |
| | | 00...04 | VCO1 Wave | saw(0),pulse(1),inner1(2),<br>inner2(3),inner3(4) | *5 | |
| 18 | 1 | 00...7F | VCO1 Pitch Coarse | -64...+63 semitone | | 40(+0) |
| 19 | 1 | 0E...72 | VCO1 Pitch Fine | -50...+50 cent | | 40(+0) |
| 1a | 1 | 00...7F | VCO1 Edge | 0...127 | | 64(100) |
| 1b | 1 | 00...7F | VCO1 Pulse Width | 0%(0)...50%(40)...99%(7F) | | 40(50%) |
| 1c | 1 | 01...7F | VCO1 PWM Depth | -64...+63 | | 40(+0) |
| 1d | 1 | 00...06 | VCO1 PWM Source | fixed(0),PEG(1),FEG(2),<br>LFO1(3),LFO2(4),LFO2-phase(5),<br>LFO2-fast(6) | | 00(fixed) |
| 1e | 2 | 01...FF | VCO1 Pitch Mod Depth | -127...+127 | | 80(+0) |
| 20 | 1 | 00...03 | VCO2 Wave | saw(0),pulse(1),saw2(2),mix(3) | | 00(saw) |
| 21 | 1 | 00...7F | VCO2 Pitch Coarse | -64...+63 semitone | | 40(+0) |
| 22 | 1 | 0E...72 | VCO2 Pitch Fine | -50(0E)...+50 cent(72) | | 40(+0) |
| 23 | 1 | 00...7F | VCO2 Edge | 0...127 | | 127 |
| 24 | 1 | 00...7F | VCO2 Pulse Width | 0%(0)...50%(40)...99%(7F) | | 40(50%) |
| 25 | 1 | 00...7F | VCO2 PWM Depth | -64...+63 | | 40(+0) |
| 26 | 1 | 00...06 | VCO2 PWM Source | fixed(0),PEG(1),FEG(2),<br>LFO1(3),LFO2(4),LFO2-phase(5),<br>LFO2-fast(6) | | 00(fixed) |
| 27 | 2 | 01...FF | VCO2 Pitch Mod Depth | -127...+127 | | 80(+0) |
| 29 | 1 | 00...7F | Mixer VCO1 Level | 0...127 | | 7F |
| 2a | 1 | 00...7F | Mixer VCO2 Level | 0...127 | | 00 |
| 2b | 1 | 00...7F | Mixer Ring Mod Level | 0...127 | | 00 |
| 2c | 1 | 00...7F | Mixer Noise Level | 0...127 | | 00 |
| 2d | 1 | 00...7F | FilterEG Attack Time | 0...127 | | 00 |
| 2e | 1 | 00...7F | FilterEG Decay Time | 0...127 | | 40 |
| 2f | 1 | 00...7F | FilterEG Sustain Level | 0...127 | | 7F |
| 30 | 1 | 00...7F | FilterEG Release Time | 0...127 | | 55(85) |
| 31 | 1 | 00...7F | VCF HPF Cutoff Freq | 0...127 | | 00 |
| 32 | 1 | 00...05 | VCF Filter Type | LPF-24dB(0),LPF-18dB(1),<br>LPF-12dB(2),BPF(3),HPF-12dB(4),<br>BEF(5) | | 00(LPF-24dB) |
| 33 | 1 | 00...7F | VCF Filter Cutoff | 0...127 | | 64(100) |
| 34 | 1 | 0D...7F | VCF Filter Resonance | -12(0D)...0(19)...+102(7F) | | 19(+0) |
| 35 | 2 | 00...FF | FilterEG Depth | -128...+127 | | A0(+32) |
| 37 | 1 | 00...7F | FilterEG Velocity Sens | -64...+63 | | 40(+0) |
| 38 | 1 | 20...7F | VCF Keyboard Track | -32...+63 | | 40(+0) |
| 39 | 1 | 00...7F | VCF Filter Mod Depth | -64...+63 | | 40(+0) |
| 3a | 1 | 00...7F | AmpEG Attack Time | 0...127 | | 00 |
| 3b | 1 | 00...7F | AmpEG Decay Time | 0...127 | | 40 |
| 3c | 1 | 00...7F | AmpEG Sustain Level | 0...127 | | 7F |
| 3d | 1 | 00...7F | AmpEG Release Time | 0...127 | | 24(36) |
| 3e | 1 | 00...7F | VCA Feedback Level | 0...127 | | 00 |
| 3f | 1 | 00...7F | VCA Volume | 0...127 | | 69(105) |
| 40 | 1 | 00...7F | AmpEG Velocity Sens | -64...+63 | | 40(+0) |
| 41 | 1 | 00...7F | VCA Amp Mod Depth | -64...+63 | | 40(+0) |
| 42 | 1 | 01...7F | Vari-Ef Dry:Wet | D63>W(1)...D=W(40)...D<W63(7F)<br>dry(0-3F),wet(40-7F)<br>dry(0-3F),both(40),wet(41-7F) | *6<br>*7<br>*8 | 01(D63>W) |
| 43 | 1 | 00...00 | Reserve | 0...0 | | 00 |
| 44 | 1 | 00...72 | Ctrl Matrix Source1 | off(0)...Assign Knob8(72) | *9 | 00 |
| 45 | 1 | 00...24 | Ctrl Matrix Param 1 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 46 | 1 | 00...7F | Ctrl Matrix Depth 1 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 47 | 1 | 00...72 | Ctrl Matrix Source2 | off(0)...Assign Knob8(72) | *9 | 00 |
| 48 | 1 | 00...24 | Ctrl Matrix Param 2 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 49 | 1 | 00...7F | Ctrl Matrix Depth 2 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 4a | 1 | 00...72 | Ctrl Matrix Source3 | off(0)...Assign Knob8(72) | *9 | 00 |
| 4b | 1 | 00...24 | Ctrl Matrix Param 3 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 4c | 1 | 00...7F | Ctrl Matrix Depth 3 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 4d | 1 | 00...72 | Ctrl Matrix Source4 | off(0)...Assign Knob8(72) | *9 | 00 |
| 4e | 1 | 00...24 | Ctrl Matrix Param 4 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 4f | 1 | 00...7F | Ctrl Matrix Depth 4 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 50 | 1 | 00...72 | Ctrl Matrix Source5 | off(0)...Assign Knob8(72) | *9 | 00 |
| 51 | 1 | 00...24 | Ctrl Matrix Param 5 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 52 | 1 | 00...7F | Ctrl Matrix Depth 5 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 53 | 1 | 00...72 | Ctrl Matrix Source6 | off(0)...Assign Knob8(72) | *9 | 00 |
| 54 | 1 | 00...24 | Ctrl Matrix Param 6 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 55 | 1 | 00...7F | Ctrl Matrix Depth 6 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 56 | 1 | 00...72 | Ctrl Matrix Source7 | off(0)...Assign Knob8(72) | *9 | 00 |
| 57 | 1 | 00...24 | Ctrl Matrix Param 7 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 58 | 1 | 00...7F | Ctrl Matrix Depth 7 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 59 | 1 | 00...72 | Ctrl Matrix Source8 | off(0)...Assign Knob8(72) | *9 | 00 |
| 5a | 1 | 00...24 | Ctrl Matrix Param 8 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 5b | 1 | 00...7F | Ctrl Matrix Depth 8 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 5c | 1 | 00...72 | Ctrl Matrix Source9 | off(0)...Assign Knob8(72) | *9 | 00 |
| 5d | 1 | 00...24 | Ctrl Matrix Param 9 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 5e | 1 | 00...7F | Ctrl Matrix Depth 9 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 5f | 1 | 00...72 | Ctrl Matrix Source10 | off(0)...Assign Knob8(72) | *9 | 00 |
| 60 | 1 | 00...24 | Ctrl Matrix Param 10 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 61 | 1 | 00...7F | Ctrl Matrix Depth 10 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 62 | 1 | 00...72 | Ctrl Matrix Source11 | off(0)...Assign Knob8(72) | *9 | 00 |
| 63 | 1 | 00...24 | Ctrl Matrix Param 11 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 64 | 1 | 00...7F | Ctrl Matrix Depth 11 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 65 | 1 | 00...72 | Ctrl Matrix Source12 | off(0)...Assign Knob8(72) | *9 | 00 |
| 66 | 1 | 00...24 | Ctrl Matrix Param 12 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 67 | 1 | 00...7F | Ctrl Matrix Depth 12 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 68 | 1 | 00...72 | Ctrl Matrix Source13 | off(0)...Assign Knob8(72) | *9 | 00 |
| 69 | 1 | 00...24 | Ctrl Matrix Param 13 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 6a | 1 | 00...7F | Ctrl Matrix Depth 13 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 6b | 1 | 00...72 | Ctrl Matrix Source14 | off(0)...Assign Knob8(72) | *9 | 00 |
| 6c | 1 | 00...24 | Ctrl Matrix Param 14 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 6d | 1 | 00...7F | Ctrl Matrix Depth 14 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 6e | 1 | 00...72 | Ctrl Matrix Source15 | off(0)...Assign Knob8(72) | *9 | 00 |
| 6f | 1 | 00...24 | Ctrl Matrix Param 15 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 70 | 1 | 00...7F | Ctrl Matrix Depth 15 | Depends on Ctrl Matrix Param | *9 | 40(+0) |
| 71 | 1 | 00...72 | Ctrl Matrix Source16 | off(0)...Assign Knob8(72) | *9 | 00 |
| 72 | 1 | 00...24 | Ctrl Matrix Param 16 | off(0)...Vari-Ef Dry:Wet(24) | *9 | 00 |
| 73 | 1 | 00...7F | Ctrl Matrix Depth 16 | Depends on Ctrl Matrix Param | *9 | 40(+0) |

Total size 74 : Scene 1, 2 Edit Buffer
Total size 44 : Scene Ctrl Buffer

S=0 ; Scene 1 Edit Buffer
1 ; Scene 2 Edit Buffer
2 ; Scene Ctrl Buffer (* effective only when Scene Ctrl is active)

*1 : Poly Mode = poly
*2 : Poly Mode = mono,legato
*3 : see other table (LFO1 Wave Type List)
*4 : Oscillator Sync = off
*5 : Oscillator Sync = on
*6 : Vari-Ef Type = except *7,*8
*7 : Vari-Ef Type = Aural Exciter, Compressor
*8 : Vari-Ef Type = Distortion, Over Drive, Amp.Simulator
*9 : see other table (Ctrl Matrix Paramter List) and not exist in scene-ctrl buffer

## MIDI Data Table <1-5>

MIDI Parameter Change Table ( Current Step SEQ Buffer)

| Address (H) | Size (H) | Data (H) | Prameter Name | Description | Default value(H) |
|---|---|---|---|---|---|
| 10 0e 00 | 1 | 00...09 | Step Seq Base Unit | 3/8(0)...1/32(9) | 04(1/8) |
| 01 | 1 | 01...10 | Step Seq Length | 1steps(1)...16steps(10) | 08 |
| 02 | 1 | 00...03 | Step Seq Loop Type | fwd(0),backwd(1),alternateA(2),<br>alternateB(3) | 00(fwd) |
| 03 | 1 | 00...60 | Step Seq Ctrl Change No | off(0)...95,AT(60) | 00(off) |
| 04 | 1 | 00...00 | reserved | 00 | 00 |
| 05 | 1 | 00...00 | reserved | 00 | 00 |
| 06 | 1 | 00...7F | Step Seq Note No 1 | C-2(0)...G8(7F) | C3(3C) |
| 07 | 1 | 00...7F | Step Seq Note No 2 | C-2(0)...G8(7F) | C3(3C) |
| 08 | 1 | 00...7F | Step Seq Note No 3 | C-2(0)...G8(7F) | C3(3C) |
| 09 | 1 | 00...7F | Step Seq Note No 4 | C-2(0)...G8(7F) | C3(3C) |
| 0a | 1 | 00...7F | Step Seq Note No 5 | C-2(0)...G8(7F) | C3(3C) |
| 0b | 1 | 00...7F | Step Seq Note No 6 | C-2(0)...G8(7F) | C3(3C) |
| 0c | 1 | 00...7F | Step Seq Note No 7 | C-2(0)...G8(7F) | C3(3C) |
| 0d | 1 | 00...7F | Step Seq Note No 8 | C-2(0)...G8(7F) | C3(3C) |
| 0e | 1 | 00...7F | Step Seq Note No 9 | C-2(0)...G8(7F) | C3(3C) |
| 0f | 1 | 00...7F | Step Seq Note No 10 | C-2(0)...G8(7F) | C3(3C) |
| 10 | 1 | 00...7F | Step Seq Note No 11 | C-2(0)...G8(7F) | C3(3C) |
| 11 | 1 | 00...7F | Step Seq Note No 12 | C-2(0)...G8(7F) | C3(3C) |
| 12 | 1 | 00...7F | Step Seq Note No 13 | C-2(0)...G8(7F) | C3(3C) |
| 13 | 1 | 00...7F | Step Seq Note No 14 | C-2(0)...G8(7F) | C3(3C) |
| 14 | 1 | 00...7F | Step Seq Note No 15 | C-2(0)...G8(7F) | C3(3C) |
| 15 | 1 | 00...7F | Step Seq Note No 16 | C-2(0)...G8(7F) | C3(3C) |
| 16 | 1 | 00...7F | Step Seq Velocity 1 | rest(0),1...127 | 100(64) |
| 17 | 1 | 00...7F | Step Seq Velocity 2 | rest(0),1...127 | 100(64) |
| 18 | 1 | 00...7F | Step Seq Velocity 3 | rest(0),1...127 | 100(64) |
| 19 | 1 | 00...7F | Step Seq Velocity 4 | rest(0),1...127 | 100(64) |
| 1a | 1 | 00...7F | Step Seq Velocity 5 | rest(0),1...127 | 100(64) |
| 1b | 1 | 00...7F | Step Seq Velocity 6 | rest(0),1...127 | 100(64) |
| 1c | 1 | 00...7F | Step Seq Velocity 7 | rest(0),1...127 | 100(64) |
| 1d | 1 | 00...7F | Step Seq Velocity 8 | rest(0),1...127 | 100(64) |
| 1e | 1 | 00...7F | Step Seq Velocity 9 | rest(0),1...127 | 100(64) |
| 1f | 1 | 00...7F | Step Seq Velocity 10 | rest(0),1...127 | 100(64) |
| 20 | 1 | 00...7F | Step Seq Velocity 11 | rest(0),1...127 | 100(64) |
| 21 | 1 | 00...7F | Step Seq Velocity 12 | rest(0),1...127 | 100(64) |
| 22 | 1 | 00...7F | Step Seq Velocity 13 | rest(0),1...127 | 100(64) |
| 23 | 1 | 00...7F | Step Seq Velocity 14 | rest(0),1...127 | 100(64) |
| 24 | 1 | 00...7F | Step Seq Velocity 15 | rest(0),1...127 | 100(64) |
| 25 | 1 | 00...7F | Step Seq Velocity 16 | rest(0),1...127 | 100(64) |
| 26 | 1 | 00...7F | Step Seq Gate Time 1 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 27 | 1 | 00...7F | Step Seq Gate Time 2 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 28 | 1 | 00...7F | Step Seq Gate Time 3 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 29 | 1 | 00...7F | Step Seq Gate Time 4 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2a | 1 | 00...7F | Step Seq Gate Time 5 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2b | 1 | 00...7F | Step Seq Gate Time 6 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2c | 1 | 00...7F | Step Seq Gate Time 7 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1d | 1 | 00...7F | Step Seq Gate Time 8 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2e | 1 | 00...7F | Step Seq Gate Time 9 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2f | 1 | 00...7F | Step Seq Gate Time 10 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 30 | 1 | 00...7F | Step Seq Gate Time 11 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 31 | 1 | 00...7F | Step Seq Gate Time 12 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 32 | 1 | 00...7F | Step Seq Gate Time 13 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 33 | 1 | 00...7F | Step Seq Gate Time 14 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 34 | 1 | 00...7F | Step Seq Gate Time 15 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 35 | 1 | 00...7F | Step Seq Gate Time 16 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 36 | 1 | 00...7F | Step Seq Ctrl Change Value 1 | 0...127 | 0(00) |
| 37 | 1 | 00...7F | Step Seq Ctrl Change Value 2 | 0...127 | 0(00) |
| 38 | 1 | 00...7F | Step Seq Ctrl Change Value 3 | 0...127 | 0(00) |
| 39 | 1 | 00...7F | Step Seq Ctrl Change Value 4 | 0...127 | 0(00) |
| 3a | 1 | 00...7F | Step Seq Ctrl Change Value 5 | 0...127 | 0(00) |
| 3b | 1 | 00...7F | Step Seq Ctrl Change Value 6 | 0...127 | 0(00) |
| 3c | 1 | 00...7F | Step Seq Ctrl Change Value 7 | 0...127 | 0(00) |
| 3d | 1 | 00...7F | Step Seq Ctrl Change Value 8 | 0...127 | 0(00) |
| 3e | 1 | 00...7F | Step Seq Ctrl Change Value 9 | 0...127 | 0(00) |
| 3f | 1 | 00...7F | Step Seq Ctrl Change Value 10 | 0...127 | 0(00) |
| 40 | 1 | 00...7F | Step Seq Ctrl Change Value 11 | 0...127 | 0(00) |
| 41 | 1 | 00...7F | Step Seq Ctrl Change Value 12 | 0...127 | 0(00) |
| 42 | 1 | 00...7F | Step Seq Ctrl Change Value 13 | 0...127 | 0(00) |
| 43 | 1 | 00...7F | Step Seq Ctrl Change Value 14 | 0...127 | 0(00) |
| 44 | 1 | 00...7F | Step Seq Ctrl Change Value 15 | 0...127 | 0(00) |
| 45 | 1 | 00...7F | Step Seq Ctrl Change Value 16 | 0...127 | 0(00) |

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## MIDI Data Table <1-6>

MIDI Parameter Change Table ( User Voice: Only Bulk Dump )

| Address (H) | Size (H) | Data (H) | Prameter Name | Description | Default value(H) |
|---|---|---|---|---|---|
| (from Here : Voice Common Data) | | | | | |
| 11 mm 00 | 1 | 20...7F | Voice Name 1 | Ascii Code | I |
| | 1 | 20...7F | Voice Name 2 | Ascii Code | n |
| | 1 | 20...7F | Voice Name 3 | Ascii Code | i |
| | 1 | 20...7F | Voice Name 4 | Ascii Code | t |
| | 1 | 20...7F | Voice Name 5 | Ascii Code | N |
| | 1 | 20...7F | Voice Name 6 | Ascii Code | o |
| | 1 | 20...7F | Voice Name 7 | Ascii Code | r |
| | 1 | 20...7F | Voice Name 9 | Ascii Code | a |
| | 1 | 20...7F | Voice Name 10 | Ascii Code | l |
| | 1 | 00...16 | Voice Category | –,Pf...Sg | – |
| | 1 | 01...03 | Common Scene Select | Scene1(1),Scene2(2),<br>Scene Ctrl(3) | 1(scene1) |
| | 1 | 00...05 | Layer Mode | sinlge(0),unison(1),dual(2),<br>dual-unison(3),split(4),<br>split-unison(5) | 00(single) |
| | 1 | 00...02 | Layer Pan | off(0),alternate(1),random(2) | 00(off) |
| | 1 | 00...32 | Layer Separation | 0...32 | 00 |
| | 1 | 00...32 | Unison Detune | 0...32 | 06 |
| | 2 | 27...F0 | Common Tempo | midi(27),40(28)...240(F0) | 8C(140) |
| | 1 | 00...7F | Common Split Point | C-2(0)...G8(7F) | 3C(C3) |
| | 1 | 00...01 | Common Portamento Switch | off(0)...on(1) | 00(off) |
| | 1 | 00...72 | Common Ctrl Matrix Source1 | off(0)...Assign Knob8(72) *1 | 00 |
| | 1 | 00...05 | Common Ctrl Matrix Param 1 | off(0)...Rev Return(5) *1 | 00 |
| | 1 | 00...7F | Common Ctrl Matrix Depth 1 | -64...+63 *1 | 40(+0) |
| | 1 | 00...72 | Common Ctrl Matrix Source2 | off(0)...Assign Knob8(72) *1 | 00 |
| | 1 | 00...05 | Common Ctrl Matrix Param 2 | off(0)...Rev Return(5) *1 | 00 |
| | 1 | 00...7F | Common Ctrl Matrix Depth 2 | -64...+63 *1 | 40(+0) |
| | 1 | 00...0D | Vari-Ef Type | See Effect Type List | 00(=Chorus 1) |

| | | | | | |
|---|---|---|---|---|---|
| 1 | 00...00 | reserved | 00 | | 00 |
| 2 | 00...7F | Vari-Ef Param 1 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | 00...7F | Vari-Ef Param 1 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 2 | 00...7F | Vari-Ef Param 2 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | 00...7F | Vari-Ef Param 2 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 2 | 00...7F | Vari-Ef Param 3 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | 00...7F | Vari-Ef Param 3 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 2 | 00...7F | Vari-Ef Param 4 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | 00...7F | Vari-Ef Param 4 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 2 | 00...7F | Vari-Ef Param 5 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | 00...7F | Vari-Ef Param 5 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 2 | 00...7F | Vari-Ef Param 6 MSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| | 00...7F | Vari-Ef Param 6 LSB | See Effect Parameter List | | Depends On Vari-Ef Type |
| 1 | 04...28 | 3-Band EQ Low Freq | 32Hz(04)...2.0kHz(28) | | 11(140Hz) |
| 1 | 34...4C | 3-Band EQ Low Gain | 12dB(34)...0(40)...+12dB(4C) | | 40(+0dB) |
| 1 | 0E...36 | 3-Band EQ Mid Freq | 100Hz(0E)...10.0kHz(36) | | 28(2.0kHz) |
| 1 | 34...4C | 3-Band EQ Mid Gain | 12dB(34)...0(40)...+12dB(4C) | | 40(+0dB) |
| 1 | 0A...78 | 3-Band EQ Mid Resonance(Q) | 1.0(0A)...12.0(78) | | 0A(1.0) |
| 1 | 1C...3A | 3-Band EQ High Freq | 500Hz(1C)...16.0kHz(38) | | 34(8.0kHz) |
| 1 | 34...4C | 3-Band EQ High Gain | -12dB(34)...0(40)...+12dB(4C) | | 40(+0dB) |
| 1 | 00...01 | Dly-Rev Connection | seri(0),para(1) | | 00(seri) |
| 1 | 00...0D | Dly-Ef Type | See Effect Type List | | 00(=Delay L,C,R) |
| 1 | 00...7F | Dly-Ef Return | 0...127 | | 00 |
| 2 | 00...7F | Dly-Ef Param 1 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | 00...7F | Dly-Ef Param 1 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 2 | 00...7F | Dly-Ef Param 2 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | 00...7F | Dly-Ef Param 2 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 2 | 00...7F | Dly-Ef Param 3 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | 00...7F | Dly-Ef Param 3 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 2 | 00...7F | Dly-Ef Param 4 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | 00...7F | Dly-Ef Param 4 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 2 | 00...7F | Dly-Ef Param 5 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | 00...7F | Dly-Ef Param 5 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 2 | 00...7F | Dly-Ef Param 6 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | 00...7F | Dly-Ef Param 6 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 2 | 00...7F | Dly-Ef Param 7 MSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| | 00...7F | Dly-Ef Param 7 LSB | See Effect Parameter List | | Depends On Dly-Ef Type |
| 1 | 00...0D | Rev-Ef Type | See Effect Type List | | 00(=Hall 1) |
| 1 | 00...7F | Rev-Ef Return | 0...127 | | 00 |
| 2 | 00...7F | Rev-Ef Param 1 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | 00...7F | Rev-Ef Param 1 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 2 | 00...7F | Rev-Ef Param 2 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | 00...7F | Rev-Ef Param 2 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 2 | 00...7F | Rev-Ef Param 3 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | 00...7F | Rev-Ef Param 3 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 2 | 00...7F | Rev-Ef Param 4 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | 00...7F | Rev-Ef Param 4 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 2 | 00...7F | Rev-Ef Param 5 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | 00...7F | Rev-Ef Param 5 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 2 | 00...7F | Rev-Ef Param 6 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | 00...7F | Rev-Ef Param 6 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| 2 | 00...7F | Rev-Ef Param 7 MSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | 00...7F | Rev-Ef Param 7 LSB | See Effect Parameter List | | Depends On Rev-Ef Type |
| | | | | | |
| 1 | 00...01 | Arpeggio/Step Seq on/off | off(0),on(1) | | 00(off) |
| 1 | 00...01 | Arpeggio/Step Seq Select | Arpeggio(0),Step Seq(1) | | 00(Arpeggio) |
| 1 | 00...1D | Arpeggio Type/<br>Step Seq Ptn No | <br>UpDwn1(0)...BassLineD(1D) | <br>*2 | <br>00(UpDwn1) |
| | 00...7F | | C#1:Usr001(0)...Usr128(7F) | *3 | |
| 1 | 00...01 | Arpeggio/Step Seq Kbd Mode | chord(0),chord&normal(1) | *4 | 00(chord) |
| | 00...03 | | normal(0),note-shift&normal(1),<br>ptn-sel&normal(2),<br>pt-sel&note-shift(3) | *5<br><br>*6 | |
| 1 | 01...03 | Arpeggio/Step Hold | off(0),on(1) | | 00(off) |
| | 00...02 | | off(0),mode1(1),mode2(2) | *7 | |
| | | | | | |
| 1 | 00...02 | Arpeggio/Step Seq Scene Sw. | Scene1(1),Scene2(2),both(3) | | 03(both) |
| 1 | 00...09 | Arpeggio Subdivide | 3/8(0)...1/32(9) | | 08(1/16) |
| | | | | | |
| 1 | 32...53 | Play Effect Swing | 50%(32)...83%(53) | *8 | 32(50%) |
| 2 | 00...C8 | Play Effect Velocity | realtime(0),1%(1)...200%(C8) | | 64(100%) |
| 2 | 01...C8 | Play Effect Gate Time | 1%(1)...200%(C8) | *8 | 64(100%) |
| | | | | | |
| 1 | 00...02 | Free EG Trigger | free(0),keyboard&midi(1),all(2) | | 01(kbd&midi) |
| 1 | 00...04 | Free EG Loop Type | off(0),fwd(1),fwd-half(2),<br>alternate(3),alternate-half(4) | | 04(Alt-half) |
| 1 | 02...60 | Free EG Length | 1/2bar(2),1bar(3),3/2bar(4),<br>2bar(5),3bar(6),4bar(7),6bar(8),<br>8bar(9),1.0sec(0A)...8.0sec(50)<br>...16.0sec(60) | | 28(4.0sec) |
| 1 | 00...7F | Free EG Keyboard Track | -64...+63 | | 40(+0) |
| 1 | 00...38 | Free EG Trk Param 1 | off(0)...VCA Mod Depth(38) | *9 | 00(off) |
| 1 | 00...0F | Free EG Trk Scene Switch 1 | off(0),Scene1(1),Scene2(2),both(3)<br>bit2..3=track sw's back up | | 00(off) |
| 1 | 00...38 | Free EG Trk Param 2 | off(0)...VCA Mod Depth(38) | *9 | 00(off) |
| 1 | 00...0F | Free EG Trk Scene Switch 2 | off(0),Scene1(1),Scene2(2),,both(3)<br>bit2..3=track sw's back up | | 00(off) |
| 1 | 00...38 | Free EG Trk Param 3 | off(0)...VCA Mod Depth(38) | *9 | 00(off) |
| 1 | 00...0F | Free EG Trk Scene Switch 3 | off(0),Scene1(1),Scene2(2),both(3)<br>bit2..3=track sw's back up | | 00(off) |
| 1 | 00...38 | Free EG Trk Param 4 | off(0)...VCA Mod Depth(38) | *9 | 00(off) |
| 1 | 00...0F | Free EG Trk Scene Switch 4 | off(0),Scene1(1),Scene2(2),both(3)<br>bit2..3=track sw's back up | | 00(off) |
| 2 | 00...01 | Free EG Trk1 Data1 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk1 Data1 LSB | 0...127 | *10 | 00 |
| 2 | 00...01 | Free EG Trk1 Data2 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk1 Data2 LSB | 0...127 | *10 | 00 |
| : | : | : | : | | : |
| 2 | 00...01 | Free EG Trk1 Data192 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk1 Data192 LSB | 0...127 | *10 | 00 |
| 2 | 00...01 | Free EG Trk2 Data1 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk2 Data1 LSB | 0...127 | *10 | 00 |
| 2 | 00...01 | Free EG Trk2 Data2 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk2 Data2 LSB | 0...127 | *10 | 00 |
| : | : | : | : | | : |
| 2 | 00...01 | Free EG Trk2 Data192 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk2 Data192 LSB | 0...127 | *10 | 00 |
| 2 | 00...01 | Free EG Trk3 Data1 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk3 Data1 LSB | 0...127 | *10 | 00 |
| 2 | 00...01 | Free EG Trk3 Data2 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk3 Data2 LSB | 0...127 | *10 | 00 |
| : | : | : | : | | : |
| 2 | 00...01 | Free EG Trk3 Data128 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk3 Data128 LSB | 0...127 | *10 | 00 |
| 2 | 00...01 | Free EG Trk4 Data1 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk4 Data1 LSB | 0...127 | *10 | 00 |
| 2 | 00...01 | Free EG Trk4 Data2 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk4 Data2 LSB | 0...127 | *10 | 00 |
| : | : | : | : | | : |
| 2 | 00...01 | Free EG Trk4 Data128 MSB | 0...1 | *10 | 01 |
| | 00...7F | Free EG Trk4 Data128 LSB | 0...127 | *10 | 00 |

(from Here : Scene1's Data)

| | | | | | |
|---|---|---|---|---|---|
| 1 | 00...02 | Poly Mode | poly(0),mono(1),legato(2) | | 00(poly) |
| 1 | 2C...54 | Pich Up (PB Range +) | -24(2C)...+24(54) | | 42(+2) |
| 1 | 2C...54 | Pich Down (PB Range -) | -24(2C)...+24(54) | | 3E(-2) |
| 1 | 00...7F | PEG Decay | -64...+63 | | 40(+0) |
| 1 | 00...7F | PEG Depth | -64...+63 semitones | | 40(+0) |
| 1 | 01...03 | PEG Switch | VCO1(1),VCO2(2),both(3) | | 03(both) |
| 1 | 00...01 | Portamento Mode | normal(0),sustain-key(1)<br>full-time(0),fingerd(1) | *11<br>*12 | 00(normal) |
| 1 | 00...7F | Portamento Time | 0...127 | | 44(68) |
| 1 | 00...01 | LFO Reset Mode | off(0),key-on(1) | | 00(off) |
| 1 | 00...14 | LFO1 Wave | sine(0)...offset-s/h2(14) | *13 | 00(sine) |
| 2 | 00...FF | LFO1 Speed | 1(0)...256(FF) | | 1F(32) |
| 1 | 00...7F | LFO1 Delay | 0...127 | | 00 |
| 2 | 00...FF | LFO2 Speed | 1(0)...256(FF) | | 57(88) |
| 1 | 00...03 | VCO Algorithm<br>(Osillator Sync & FM) | Sync-off&FM-on(0),<br>Sync-on&FM-both(1),<br>Sync-on&FM-master(2),<br>Sync-on&FM-slave(3) | | 00(Sync-off&FM-on) |
| 1 | 00...7F | Sync Pitch | -64...+63 | | 40(+0) |
| 1 | 00...7F | Sync Pitch Depth | -64...+63 | | 40(+0) |
| 1 | 00...04 | Sync Pitch Source | fixed(0),PEG(1),FEG(2),LFO1(3)<br>LFO2(4) | | 00(fixed) |
| 1 | 01...03 | Sync Pitch Mod Switch | master(1),slave(2),both(3) | | 03(both) |
| 1 | 00...7F | FM Depth | -64...+63 | | 40(+0) |
| 1 | 00...04 | FM Source 1 | fixed(0),PEG(1),FEG(2),LFO1(3),<br>LFO2(4) | | 00(fixed) |
| 1 | 00...06 | FM Source 2 | VCO2(0),VCO1(1),VCO1-sub(2),<br>PEG(3),FEG(4),LFO1(5),LFO2(6) | | 00(VCO2) |
| | | | | | |
| 1 | 00...03 | VCO1 Wave | saw(0),pulse(1),saw2(2),mix(3) | *14 | 00(saw) |
| | 00...04 | VCO1 Wave | saw(0),pulse(1),inner1(2),<br>inner2(3),inner3(4) | *15 | |
| 1 | 00...7F | VCO1 Pitch Coarse | -64...+63 semitone | | 40(+0) |
| 1 | 0E...72 | VCO1 Pitch Fine | -50...+50 cent | | 40(+0) |
| | | | | | |
| 1 | 00...7F | VCO1 Edge | 0...127 | | (64)100 |
| 1 | 00...7F | VCO1 Pulse Width | 0%(0)...50%(40)...99%(7F) | | 40(50%) |
| 1 | 01...7F | VCO1 PWM Depth | -64...+63 | | 40(+0) |
| 1 | 00...06 | VCO1 PWM Source | fixed(0),PEG(1),FEG(2),<br>LFO1(3),LFO2(4),LFO2-phase(5),<br>LFO2-fast(6) | | 00(fixed) |
| 2 | 01...FF | VCO1 Pitch Mod Depth | -127...+127 | | 80(+0) |
| | | | | | |
| 1 | 00...03 | VCO2 Wave | saw(0),pulse(1),saw2(2),mix(3) | | 00(saw) |
| 1 | 00...7F | VCO2 Pitch Coarse | -64...+63 semitone | | 40(+0) |
| 1 | 0E...72 | VCO2 Pitch Fine | -50(0E)...+50 cent(72) | | 40(+0) |
| | | | | | |
| 1 | 00...7F | VCO2 Edge | 0...127 | | 127 |
| 1 | 00...7F | VCO2 Pulse Width | 0%(0)...50%(40)...99%(7F) | | 40(50%) |
| 1 | 00...7F | VCO2 PWM Depth | -64...+63 | | 40(+0) |
| 1 | 00...06 | VCO2 PWM Source | fixed(0),PEG(1),FEG(2),<br>LFO1(3),LFO2(4),LFO2-phase(5),<br>LFO2-fast(6) | | 00(fixed) |
| 2 | 01...FF | VCO2 Pitch Mod Depth | -127...+127 | | 80(+0) |
| | | | | | |
| 1 | 00...7F | Mixer VCO1 Level | 0...127 | | 7F |
| 1 | 00...7F | Mixer VCO2 Level | 0...127 | | 00 |
| 1 | 00...7F | Mixer Ring Mod Level | 0...127 | | 00 |
| 1 | 00...7F | Mixer Noise Level | 0...127 | | 00 |
| | | | | | |
| 1 | 00...7F | FilterEG Attack Time | 0...127 | | 00 |
| 1 | 00...7F | FilterEG Decay Time | 0...127 | | 40 |
| 1 | 00...7F | FilterEG Sustain Level | 0...127 | | 7F |
| 1 | 00...7F | FilterEG Release Time | 0...127 | | 55(85) |
| | | | | | |
| 1 | 00...7F | VCF HPF Cutoff Freq | 0...127 | | 00 |
| 1 | 00...05 | VCF Filter Type | LPF-24dB(0),LFP-18dB(1),<br>LPF-12dB(2),BPF(3),HPF-12dB(4),<br>BEF(5) | | 00(LPF-24dB) |
| 1 | 00...7F | VCF Filter Cutoff | 0...127 | | (64)100 |
| 1 | 0D...7F | VCF Filter Resonance | -12(0D)...0(19)...+102(7F) | | 19(+0) |
| 2 | 00...FF | FilterEG Depth | -128...+127 | | A0(+32) |
| 1 | 00...7F | FilterEG Velocity Sens | -64...+63 | | 40(+0) |
| 1 | 20...7F | VCF Keyboard Track | -32...+63 | | 40(+0) |
| 1 | 00...7F | VCF Filter Mod Depth | -64...+63 | | 40(+0) |
| 1 | 00...7F | AmpEG Attack Time | 0...127 | | 00 |
| 1 | 00...7F | AmpEG Decay Time | 0...127 | | 40 |
| 1 | 00...7F | AmpEG Sustain Level | 0...127 | | 7F |
| 1 | 00...7F | AmpEG Release Time | 0...127 | | 24(36) |
| 1 | 00...7F | VCA Feedback Level | 0...127 | | 00 |
| 1 | 00...7F | VCA Volume | 0...127 | | 69(105) |
| 1 | 00...7F | AmpEG Velocity Sens | -64...+63 | | 40(+0) |
| 1 | 00...7F | VCA Amp Mod Depth | -64...+63 | | 40(+0) |
| 1 | 01...7F | Vari-Ef Dry:Wet | D63>W(1)...D=W(40)...D<W63(7F)<br>dry(0-3F),wet(40-7F)<br>dry(0-3F),both(40),wet(41-7F) | *16<br>*17<br>*18 | 01(D63>W) |
| 1 | 00...00 | Reserve | 0...0 | | 00 |
| | | | | | |
| 1 | 00...72 | Ctrl Matrix Source1 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 1 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 1 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source2 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 2 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 2 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source3 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 3 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 3 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source4 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 4 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 4 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source5 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 5 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 5 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source6 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 6 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 6 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source7 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 7 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 7 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source8 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 8 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 8 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source9 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 9 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 9 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source10 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 10 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 10 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source11 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 11 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 11 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source12 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 12 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 12 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source13 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 13 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 13 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source14 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 14 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 14 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source15 | off(0)...Assign Knob8(72) | *19 | 00 |

| | | | | | |
|---|---|---|---|---|---|
| 1 | 00...24 | Ctrl Matrix Param 15 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 15 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source16 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 16 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 16 | Depends on Ctrl Matrix Param | *19 | 40(+0) |

(from Here : Scene2's Data)

| | | | | | |
|---|---|---|---|---|---|
| 1 | 00...02 | Poly Mode | poly(0),mono(1),legato(2) | | 00(poly) |
| 1 | 2C...54 | Pich Up (PB Range +) | -24(2C)...+24(54) | | 42(+2) |
| 1 | 2C...54 | Pich Down (PB Range -) | -24(2C)...+24(54) | | 3E(-2) |
| 1 | 00...7F | PEG Decay | -64...+63 | | 40(+0) |
| 1 | 00...7F | PEG Depth | -64...+63 semitones | | 40(+0) |
| 1 | 01...03 | PEG Switch | VCO1(1),VCO2(2),both(3) | | 03(both) |
| 1 | 00...01 | Portamento Mode | normal(0),sustain-key(1) | *11 | 00(normal) |
| | | | full-time(0),fingerd(1) | *12 | |
| 1 | 00...7F | Portamento Time | 0...127 | | 44(68) |
| 1 | 00...01 | LFO Reset Mode | off(0),key-on(1) | | 00(off) |
| 1 | 00...14 | LFO1 Wave | sine(0)...offset-s/h2(14) | *13 | 00(sine) |
| 2 | 00...FF | LFO1 Speed | 1(0)...256(FF) | | 1F(32) |
| 1 | 00...7F | LFO1 Delay | 0...127 | | 00 |
| 2 | 00...FF | LFO2 Speed | 1(0)...256(FF) | | 57(88) |
| 1 | 00...3 | VCO Algorithm | Sync-off&FM-on(0), | | 00(Sync-off&FM-on) |
| | | (Osillator Sync & FM) | Sync-on&FM-both(1), | | |
| | | | Sync-on&FM-master(2), | | |
| | | | Sync-on&FM-slave(3) | | |
| 1 | 00...7F | Sync Pitch | -64...+63 | | 40(+0) |
| 1 | 00...7F | Sync Pitch Depth | -64...+63 | | 40(+0) |
| 1 | 00...04 | Sync Pitch Source | fixed(0),PEG(1),FEG(2),LFO1(3), | | 00(fixed) |
| | | | LFO2(4) | | |
| 1 | 01...03 | Sync Pitch Mod Switch | master(1),slave(2),both(3) | | 03(both) |
| 1 | 00...7F | FM Depth | -64...+63 | | 40(+0) |
| 1 | 00...04 | FM Source 1 | fixed(0),PEG(1),FEG(2),LFO1(3), | | 00(fixed) |
| | | | LFO2(4) | | |
| 1 | 00...06 | FM Source 2 | VCO2(0),VCO1(1),VCO1-sub(2), | | 00(VCO2) |
| | | | PEG(3),FEG(4),LFO1(5),LFO2(6) | | |
| 1 | 00...03 | VCO1 Wave | saw(0),pulse(1),saw2(2),mix(3) | *14 | 00(saw) |
| | 00...04 | VCO1 Wave | saw(0),pulse(1),inner1(2), | *15 | |
| | | | inner2(3),inner3(4) | | |
| 1 | 00...7F | VCO1 Pitch Coarse | -64...+63 semitone | | 40(+0) |
| 1 | 0E...72 | VCO1 Pitch Fine | -50...+50 cent | | 40(+0) |
| 1 | 00...7F | VCO1 Edge | 0...127 | | (64)100 |
| 1 | 00...7F | VCO1 Pulse Width | 0%(0)...50%(40)...99%(7F) | | 40(50%) |
| 1 | 01...7F | VCO1 PWM Depth | -64...+63 | | 40(+0) |
| 1 | 00...06 | VCO1 PWM Source | fixed(0),PEG(1),FEG(2), | | 00(fixed) |
| | | | LFO1(3),LFO2(4),LFO2-phase(5), | | |
| | | | LFO2-fast(6) | | |
| 2 | 01...FF | VCO1 Pitch Mod Depth | -127...+127 | | 80(+0) |
| 1 | 00...03 | VCO2 Wave | saw(0),pulse(1),saw2(2),mix(3) | | 00(saw) |
| 1 | 00...7F | VCO2 Pitch Coarse | -64...+63 semitone | | 40(+0) |
| 1 | 0E...72 | VCO2 Pitch Fine | -50(0E)...+50 cent(72) | | 40(+0) |
| 1 | 00...7F | VCO2 Edge | 0...127 | | 127 |
| 1 | 00...7F | VCO2 Pulse Width | 0%(0)...50%(40)...99%(7F) | | 40(50%) |
| 1 | 01...7F | VCO2 PWM Depth | -64...+63 | | 40(+0) |
| 1 | 00...06 | VCO2 PWM Source | fixed(0),PEG(1),FEG(2), | | 00(fixed) |
| | | | LFO1(3),LFO2(4),LFO2-phase(5), | | |
| | | | LFO2-fast(6) | | |
| 2 | 01...FF | VCO2 Pitch Mod Depth | -127...+127 | | 80(+0) |
| 1 | 00...7F | Mixer VCO1 Level | 0...127 | | 7F |
| 1 | 00...7F | Mixer VCO2 Level | 0...127 | | 00 |
| 1 | 00...7F | Mixer Ring Mod Level | 0...127 | | 00 |
| 1 | 00...7F | Mixer Noise Level | 0...127 | | 00 |
| 1 | 00...7F | FilterEG Attack Time | 0...127 | | 00 |
| 1 | 00...7F | FilterEG Decay Time | 0...127 | | 40 |
| 1 | 00...7F | FilterEG Sustain Level | 0...127 | | 7F |
| 1 | 00...7F | FilterEG Release Time | 0...127 | | 55(85) |
| 1 | 00...7F | VCF HPF Cutoff Freq | 0...127 | | 00 |
| 1 | 00...05 | VCF Filter Type | LPF-24dB(0),LFP-18dB(1), | | 00(LPF-24dB) |
| | | | LPF-12dB(2),BPF(3),HPF-12dB(4), | | |
| | | | BEF(5) | | |
| 1 | 00...7F | VCF Filter Cutoff | 0...127 | | 64(100) |
| 1 | 0D...7F | VCF Filter Resonance | -12(0D)...0(19)...+102(7F) | | 19(+0) |
| 2 | 00...FF | FilterEG Depth | -128...+127 | | A0(+32) |
| 1 | 00...7F | FilterEG Velocity Sens | -64...+63 | | 40(+0) |
| 1 | 20...7F | VCF Keyboard Track | -32...+63 | | 40(+0) |
| 1 | 00...7F | VCF Filter Mod Depth | -64...+63 | | 40(+0) |
| 1 | 00...7F | AmpEG Attack Time | 0...127 | | 00 |
| 1 | 00...7F | AmpEG Decay Time | 0...127 | | 40 |
| 1 | 00...7F | AmpEG Sustain Level | 0...127 | | 7F |
| 1 | 00...7F | AmpEG Release Time | 0...127 | | 24(36) |
| 1 | 00...7F | VCA Feedback Level | 0...127 | | 00 |
| 1 | 00...7F | VCA Volume | 0...127 | | 69(105) |
| 1 | 00...7F | AmpEG Velocity Sens | -64...+63 | | 40(+0) |
| 1 | 00...7F | VCA Amp Mod Depth | -64...+63 | | 40(+0) |
| 1 | 01...7F | Vari-Ef Dry:Wet | D63>W(1)...D=W(40)...D<W63(7F) | *16 | 01(D63>W) |
| | | | dry(0-3F),wet(40-7F) | *17 | |
| | | | dry(0-3F),both(40),wet(41-7F) | *18 | |
| 1 | 00...00 | Reserve | 0...0 | | 00 |
| 1 | 00...72 | Ctrl Matrix Source1 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 1 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 1 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source2 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 2 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 2 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source3 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 3 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 3 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source4 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 4 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 4 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source5 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 5 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 5 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source6 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 6 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 6 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source7 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 7 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 7 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source8 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 8 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 8 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source9 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 9 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 9 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source10 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 10 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 10 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source11 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 11 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 11 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source12 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 12 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 12 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source13 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 13 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 0 |
| 1 | 00...7F | Ctrl Matrix Depth 13 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source14 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 14 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 14 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source15 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 15 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 15 | Depends on Ctrl Matrix Param | *19 | 40(+0) |
| 1 | 00...72 | Ctrl Matrix Source16 | off(0)...Assign Knob8(72) | *19 | 00 |
| 1 | 00...24 | Ctrl Matrix Param 16 | off(0)...Vari-Ef Dry:Wet(24) | *19 | 00 |
| 1 | 00...7F | Ctrl Matrix Depth 16 | Depends on Ctrl Matrix Param | *19 | 40(+0) |

**(from Here : Step Seq Pattern Data)**

| | | | | |
|---|---|---|---|---|
| 1 | 00...09 | Step Seq Base Unit | 3/8(0)...1/32(9) | 04(1/8) |
| 1 | 01...10 | Step Seq Length | 1steps(1)...16steps(10) | 08 |
| 1 | 00...03 | Step Seq Loop Type | fwd(0),backwd(1),alternateA(2), | 00(fwd) |
| | | | alternateB(3) | |
| 1 | 00...60 | Step Seq Ctrl Change No | off(0)...95,AT(60) | 00(off) |
| 1 | 00...00 | reserved | 00 | 00 |
| 1 | 00...00 | reserved | 00 | 00 |
| 1 | 00...7F | Step Seq Note No 1 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 2 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 3 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 4 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 5 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 6 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 7 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 8 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 9 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 10 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 11 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 12 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 13 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 14 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 15 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Note No 16 | C-2(0)...G8(7F) | C3(3C) |
| 1 | 00...7F | Step Seq Velocity 1 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 2 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 3 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 4 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 5 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 6 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 7 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 8 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 9 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 10 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 11 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 12 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 13 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 14 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 15 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Velocity 16 | rest(0),1...127 | 100(64) |
| 1 | 00...7F | Step Seq Gate Time 1 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 2 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 3 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 4 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 5 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 6 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 7 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 8 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 9 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 10 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 11 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 12 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 13 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 14 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 15 | 1%(0)...1100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Gate Time 16 | 1%(0)...1100%(40)...200%(7F) | 94%(3C) |
| 1 | 00...7F | Step Seq Ctrl Change Value 1 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 2 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 3 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 4 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 5 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 6 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 7 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 8 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 9 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 10 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 11 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 12 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 13 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 14 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 15 | 0...127 | 0(00) |
| 1 | 00...7F | Step Seq Ctrl Change Value 16 | 0...127 | 0(00) |

TOTAL SIZE 796

mm = 00 ~ 7F : User Voice 1 ~ User Voice 128

*1 : see other table (Ctrl Matrix Paramter List)
*2 : see other table (Arpeggio Type List)
*3 : become available only when Step Seq is selected and Kbd Mode ='ptn-sel&norm' or 'ptn-sel&note-shift'
*4 : only when Arpeggio is selected
*5 : only when Step Seq is selected
*6 : except *7
*7 : only when Step Seq is selected and Kbd Mode = 'ptn-sel&norm' or 'ptn-sel&note-shift'
*8 : become available only when Step Seq is selected
*9 : see other table (Free EG Track Paramter List)
*10 : only Bulk Dump (not transmitted and received as parameter change)
*11 : Poly Mode = poly
*12 : Poly Mode = mono,legato
*13 : see other table (LFO1 Wave Type List)
*14 : Osillator Sync = off
*15 : Osillator Sync = on
*16 : Vari-Ef Type = except *7, *8
*17 : Vari-Ef Type = Aural Exciter, Compressor
*18 : Vari-Ef Type = Distortion, Over Drive, Amp.Simulator
*19 : see other table (Ctrl Matrix Paramter List) and not exist in scene-ctrl buffer

## MIDI Data Table <1-7>

MIDI Parameter Change Table ( User Step SEQ Pattern : Only Bulk Dump )

| Address (H) | | | Size (H) | Data (H) | Prameter Name | Description | Default value(H) |
|---|---|---|---|---|---|---|---|
| 01 | mm | 00 | 1 | 00...09 | Step Seq Base Unit | 3/8(0)...1/32(9) | 04(1/8) |
| | | 01 | 1 | 01...10 | Step Seq Length | 1steps(1)...16steps(10) | 08 |
| | | 02 | 1 | 00...03 | Step Seq Loop Type | fwd(0),backwd(1),alternateA(2), | 00(fwd) |
| | | | | | alternateB(3) | | |
| | | 03 | 1 | 00...60 | Step Seq Ctrl Change No | off(0)...95,AT(60) | 00(off) |
| | | 04 | 1 | 00...00 | reserved | 00 | 00 |

| | | | | | |
|---|---|---|---|---|---|
| 05 | 1 | 00...00 | reserved | 00 | 00 |
| 06 | 1 | 00...7F | Step Seq Note No 1 | C-2(0)...G8(7F) | C3(3C) |
| 07 | 1 | 00...7F | Step Seq Note No 2 | C-2(0)...G8(7F) | C3(3C) |
| 08 | 1 | 00...7F | Step Seq Note No 3 | C-2(0)...G8(7F) | C3(3C) |
| 09 | 1 | 00...7F | Step Seq Note No 4 | C-2(0)...G8(7F) | C3(3C) |
| 0a | 1 | 00...7F | Step Seq Note No 5 | C-2(0)...G8(7F) | C3(3C) |
| 0b | 1 | 00...7F | Step Seq Note No 6 | C-2(0)...G8(7F) | C3(3C) |
| 0c | 1 | 00...7F | Step Seq Note No 7 | C-2(0)...G8(7F) | C3(3C) |
| 0d | 1 | 00...7F | Step Seq Note No 8 | C-2(0)...G8(7F) | C3(3C) |
| 0e | 1 | 00...7F | Step Seq Note No 9 | C-2(0)...G8(7F) | C3(3C) |
| 0f | 1 | 00...7F | Step Seq Note No 10 | C-2(0)...G8(7F) | C3(3C) |
| 10 | 1 | 00...7F | Step Seq Note No 11 | C-2(0)...G8(7F) | C3(3C) |
| 11 | 1 | 00...7F | Step Seq Note No 12 | C-2(0)...G8(7F) | C3(3C) |
| 12 | 1 | 00...7F | Step Seq Note No 13 | C-2(0)...G8(7F) | C3(3C) |
| 13 | 1 | 00...7F | Step Seq Note No 14 | C-2(0)...G8(7F) | C3(3C) |
| 14 | 1 | 00...7F | Step Seq Note No 15 | C-2(0)...G8(7F) | C3(3C) |
| 15 | 1 | 00...7F | Step Seq Note No 16 | C-2(0)...G8(7F) | C3(3C) |
| 16 | 1 | 00...7F | Step Seq Velocity 1 | rest(0),1...127 | 100(64) |
| 17 | 1 | 00...7F | Step Seq Velocity 2 | rest(0),1...127 | 100(64) |
| 18 | 1 | 00...7F | Step Seq Velocity 3 | rest(0),1...127 | 100(64) |
| 19 | 1 | 00...7F | Step Seq Velocity 4 | rest(0),1...127 | 100(64) |
| 1a | 1 | 00...7F | Step Seq Velocity 5 | rest(0),1...127 | 100(64) |
| 1b | 1 | 00...7F | Step Seq Velocity 6 | rest(0),1...127 | 100(64) |
| 1c | 1 | 00...7F | Step Seq Velocity 7 | rest(0),1...127 | 100(64) |
| 1d | 1 | 00...7F | Step Seq Velocity 8 | rest(0),1...127 | 100(64) |
| 1e | 1 | 00...7F | Step Seq Velocity 9 | rest(0),1...127 | 100(64) |
| 1f | 1 | 00...7F | Step Seq Velocity 10 | rest(0),1...127 | 100(64) |
| 20 | 1 | 00...7F | Step Seq Velocity 11 | rest(0),1...127 | 100(64) |
| 21 | 1 | 00...7F | Step Seq Velocity 12 | rest(0),1...127 | 100(64) |
| 22 | 1 | 00...7F | Step Seq Velocity 13 | rest(0),1...127 | 100(64) |
| 23 | 1 | 00...7F | Step Seq Velocity 14 | rest(0),1...127 | 100(64) |
| 24 | 1 | 00...7F | Step Seq Velocity 15 | rest(0),1...127 | 100(64) |
| 25 | 1 | 00...7F | Step Seq Velocity 16 | rest(0),1...127 | 100(64) |
| 26 | 1 | 00...7F | Step Seq Gate Time 1 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 27 | 1 | 00...7F | Step Seq Gate Time 2 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 28 | 1 | 00...7F | Step Seq Gate Time 3 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 29 | 1 | 00...7F | Step Seq Gate Time 4 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2a | 1 | 00...7F | Step Seq Gate Time 5 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2b | 1 | 00...7F | Step Seq Gate Time 6 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2c | 1 | 00...7F | Step Seq Gate Time 7 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 1d | 1 | 00...7F | Step Seq Gate Time 8 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2e | 1 | 00...7F | Step Seq Gate Time 9 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 2f | 1 | 00...7F | Step Seq Gate Time 10 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 30 | 1 | 00...7F | Step Seq Gate Time 11 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 31 | 1 | 00...7F | Step Seq Gate Time 12 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 32 | 1 | 00...7F | Step Seq Gate Time 13 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 33 | 1 | 00...7F | Step Seq Gate Time 14 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 34 | 1 | 00...7F | Step Seq Gate Time 15 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 35 | 1 | 00...7F | Step Seq Gate Time 16 | 1%(0)...100%(40)...200%(7F) | 94%(3C) |
| 36 | 1 | 00...7F | Step Seq Ctrl Change Value 1 | 0...127 | 0(00) |
| 37 | 1 | 00...7F | Step Seq Ctrl Change Value 2 | 0...127 | 0(00) |
| 38 | 1 | 00...7F | Step Seq Ctrl Change Value 3 | 0...127 | 0(00) |
| 39 | 1 | 00...7F | Step Seq Ctrl Change Value 4 | 0...127 | 0(00) |
| 3a | 1 | 00...7F | Step Seq Ctrl Change Value 5 | 0...127 | 0(00) |
| 3b | 1 | 00...7F | Step Seq Ctrl Change Value 6 | 0...127 | 0(00) |
| 3c | 1 | 00...7F | Step Seq Ctrl Change Value 7 | 0...127 | 0(00) |
| 3d | 1 | 00...7F | Step Seq Ctrl Change Value 8 | 0...127 | 0(00) |
| 3e | 1 | 00...7F | Step Seq Ctrl Change Value 9 | 0...127 | 0(00) |
| 3f | 1 | 00...7F | Step Seq Ctrl Change Value 10 | 0...127 | 0(00) |
| 40 | 1 | 00...7F | Step Seq Ctrl Change Value 11 | 0...127 | 0(00) |
| 41 | 1 | 00...7F | Step Seq Ctrl Change Value 12 | 0...127 | 0(00) |
| 42 | 1 | 00...7F | Step Seq Ctrl Change Value 13 | 0...127 | 0(00) |
| 43 | 1 | 00...7F | Step Seq Ctrl Change Value 14 | 0...127 | 0(00) |
| 44 | 1 | 00...7F | Step Seq Ctrl Change Value 15 | 0...127 | 0(00) |
| 45 | 1 | 00...7F | Step Seq Ctrl Change Value 16 | 0...127 | 0(00) |

TOTAL SIZE 46

mm = 00 ~ 7F : User Pattern 1 ~ User Pattern

YAMAHA [ Control Synthesizer ] Date:19-MAR-1997
Model : AN1x MIDI Implementation Chart Version: 1.0

| Function... | | Transmitted | Recognized | Remarks |
|---|---|---|---|---|
| Basic Channel | Default<br>Changed | 1 – 16<br>1 – 16 | 1 – 16<br>1 – 16 | Memorizd |
| Mode | Default<br>Messages<br>Altered | 3<br>×<br>* * * * * * * | 3 – 4(m=1) *1<br>3 – 4(m=1)<br>× | Memorizd |
| Note Number | : True voice | 0 – 127<br>* * * * * * * | 0 – 127<br>0 – 127 | Transpose |
| Velocity | Note on<br>Note off | ○ 9nH,v=1–127<br>× 9nH,v=0 | ○ v=1–127<br>○ | |
| After Touch | Key's<br>Ch's | ×<br>○ | ×<br>○ | |
| Pitch Bend | | ○ | ○ 0–24 semi | |
| Control Change | 0,32<br>1,4,7,12,13,64<br>5,10,11,65<br>6,38<br>66,67,84<br>71-74<br>0-95<br>91,93,94<br>96-97<br>98-99<br>100-101<br>120<br>121 | ×<br>○<br>×<br>×<br>×<br>○<br>○<br>×<br>×<br>×<br>×<br>×<br>× | ×<br>○<br>○<br>○<br>×<br>○<br>○<br>○<br>○<br>×<br>○<br>○<br>○ | Bank Select<br><br><br>Data Entry<br><br>Sound Controller<br>Assignable Control<br>Effect Send Level<br>Data Inc, Dec<br>NRPN LSB,MSB<br>RPN LSB,MSB<br>All Sounds Off<br>Reset All Controls |
| Program Change | : True number | ○ 0 – 127<br>* * * * * * * | ○ 0 – 127<br>0 – 127 | |
| System Exclusive | | ○ | ○ | |
| System Common | : Song Position<br>: Song Select<br>: Tune | ×<br>×<br>× | ×<br>×<br>× | |
| System Real Time | : Clock<br>: Commands | ×<br>× | ○<br>○ | |
| Aux Messages | : Local On/Off<br>: All Notes Off<br>: Active Sense<br>: Reset | ×<br>×<br>○<br>× | ×<br>○ ( 123 – 127 )<br>○<br>× | |

Notes : *1: m is always treated as "1" regardless of its value.

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO ○ : Yes
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO × : No

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YAMAHA CORPORATION